APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

908 N. Temperance Ave., Clovis, CA 93611 - Phone 559-275-2175 - www.applinc.com

NELAP Certification Number: CA00046
DoD-ELAP Certification Number 4064.01
State Certification Number:

April 17, 2023

Watson Tanji
AECOM Honolulu
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

RE: Red Hill AFFF Assessment Sampling
23D0043

Enclosed are the results of analyses for samples received by our laboratory on 4/6/2023. If you have any questions concerning this report, please feel free to contact me.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Sincerely,

Karen Volpendesta
Project Manager

Table of Contents

Table of Contents (continued)

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Data Validatable Report

Analysis Case Narrative

EPA 1633: Manual integrations were performed for this method in accordance with APPL's SOP. Chromatograms after manual integration are enclosed for specific samples and analytes. Abbreviated flags for technical justification are listed on the chromatogram.

The analytes PFHxA, 6:2FTS, and 3:3FTcA recovered above the upper control limit in the SC01502-LCV1.

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
23D0043-01	AF-RHMW225401-WGN01B-2304W1	Water	04/05/2023 09:00	04/06/2023
23D0043-02	AF-HDMW225303-WGN01LF-2304W1	Water	04/04/2023 10:15	04/06/2023
23D0043-03	AF-RHMW10-WGN01LF-2304W1	Water	04/04/2023 13:00	04/06/2023
23D0043-04	AF-RHMW10-WGFD01LF-2304W1	Water	04/04/2023 13:00	04/06/2023

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Containers Received

Lab ID	Container Type	Count	Preservation Check
23D0043-01			
	500mL P	2	
23D0043-02			
	500mL P	2	
23D0043-03			
	500mL P	2	
23D0043-04			
	500mL P	2	

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Sample Results

Sample: AF-RHMW225401-WGN01B-2304W1
23D0043-01 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.66	J	1.5	0.74	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
PFPEA	1.1		0.74	0.37	0.060	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHXA	0.94		0.37	0.18	0.051	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHPA	0.68		0.37	0.18	0.038	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOA	0.96		0.37	0.28	0.14	ng/L	04/14/23	1	EPA 1633	BCD0119
PFNA	0.14	J	0.37	0.18	0.075	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDA	0.18	U	0.37	0.18	0.093	ng/L	04/14/23	1	EPA 1633	BCD0119
PFUnA	0.28	U	0.37	0.28	0.15	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDOA	0.18	U	0.37	0.18	0.10	ng/L	04/14/23	1	EPA 1633	BCD0119
PFTRDA	0.28	U	0.37	0.28	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
PFTEDA	0.28	U	0.37	0.28	0.18	ng/L	04/14/23	1	EPA 1633	BCD0119
PFBS	0.75		0.37	0.18	0.034	ng/L	04/14/23	1	EPA 1633	BCD0119
PFPES	0.11	J	0.37	0.18	0.058	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHXS	1.1		0.37	0.18	0.029	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHPS	0.18	U	0.37	0.18	0.047	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOS	1.1		0.37	0.18	0.058	ng/L	04/14/23	1	EPA 1633	BCD0119
PFNS	0.18	U	0.37	0.18	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDS	0.28	U	0.37	0.28	0.14	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDOS	0.18	U	0.37	0.18	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
4:2FTS	0.74	U	1.5	0.74	0.27	ng/L	04/14/23	1	EPA 1633	BCD0119
6:2FTS	0.74	U	1.5	0.74	0.29	ng/L	04/14/23	1	EPA 1633	BCD0119
8:2FTS	0.74	U	1.5	0.74	0.076	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOSA	0.18	U	0.37	0.18	0.096	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSA	0.74	U	1.5	0.74	0.44	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSA	0.74	U	1.5	0.74	0.38	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSAA	0.18	U	0.37	0.18	0.097	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSAA	0.18	U	0.37	0.18	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSE	1.1	U	1.5	1.1	0.93	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSE	1.1	U	1.5	1.1	0.96	ng/L	04/14/23	1	EPA 1633	BCD0119
HFPO-DA	0.37	U	0.74	0.37	0.16	ng/L	04/14/23	1	EPA 1633	BCD0119
ADONA	0.37	U	0.74	0.37	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
PFEESA	0.37	U	0.74	0.37	0.10	ng/L	04/14/23	1	EPA 1633	BCD0119
PFMPA	0.37	U	0.74	0.37	0.050	ng/L	04/14/23	1	EPA 1633	BCD0119
PFMBA	0.37	U	0.74	0.37	0.083	ng/L	04/14/23	1	EPA 1633	BCD0119
NFDHA	0.37	U	0.74	0.37	0.28	ng/L	04/14/23	1	EPA 1633	BCD0119
9CL-PF3ONS	0.37	U	0.74	0.37	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
11CL-PF3OUDS	0.37	U	0.74	0.37	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
3:3FTCA	0.74	U	1.5	0.74	0.53	ng/L	04/14/23	1	EPA 1633	BCD0119
5:3FTCA	0.74	U	1.5	0.74	0.41	ng/L	04/14/23	1	EPA 1633	BCD0119
7:3FTCA	0.74	U	1.5	0.74	0.51	ng/L	04/14/23	1	EPA 1633	BCD0119
Surrogate: 13C4-PFBA	*88.9%*		*10-130*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C5-PFPEA	*77.7%*		*35-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C5-PFHXA	*84.0%*		*55-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C4-PFHPA	*84.7%*		*55-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOA	*91.8%*		*60-140*				*04/14/23*	1	*EPA 1633*	*BCD0119*

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Sample Results
(Continued)

Sample: AF-RHMW225401-WGN01B-2304W1 (Continued)
23D0043-01 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*99.7%*			*55-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C6-PFDA	*88.5%*			*50-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C7-PFUnA	*98.3%*			*30-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-PFDOA	*99.3%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-PFTEDA	*92.6%*			*10-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-PFBS	*95.8%*			*55-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-PFHXS	*92.3%*			*55-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOS	*88.9%*			*45-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-4:2FTS	*153%*			*60-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-6:2FTS	*126%*			*60-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-8:2FTS	*132%*			*50-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOSA	*65.1%*			*30-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D3-NMEFOSA	*51.6%*			*15-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D5-NETFOSA	*56.0%*			*10-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D3-NMEFOSAA	*89.3%*			*45-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D5-NETFOSAA	*107%*			*10-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D7-NMEFOSE	*59.1%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D9-NETFOSE	*65.2%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-HFPO-DA	*81.6%*			*25-160*			*04/14/23*	1	*EPA 1633*	*BCD0119*

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Sample Results

(Continued)

Sample: AF-HDMW225303-WGN01LF-2304W1
23D0043-02 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.77 U		1.5	0.77	0.20	ng/L	04/14/23	1	EPA 1633	BCD0119
PFPEA	0.38 U		0.77	0.38	0.062	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHXA	0.088 J	IR1,	0.38	0.19	0.053	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHPA	0.097 J		0.38	0.19	0.039	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOA	0.29 U	IR2,	0.38	0.29	0.15	ng/L	04/14/23	1	EPA 1633	BCD0119
PFNA	0.19 U		0.38	0.19	0.079	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDA	0.19 U		0.38	0.19	0.097	ng/L	04/14/23	1	EPA 1633	BCD0119
PFUnA	0.29 U		0.38	0.29	0.15	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDOA	0.19 U		0.38	0.19	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
PFTRDA	0.29 U		0.38	0.29	0.20	ng/L	04/14/23	1	EPA 1633	BCD0119
PFTEDA	0.29 U		0.38	0.29	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
PFBS	0.19 U		0.38	0.19	0.035	ng/L	04/14/23	1	EPA 1633	BCD0119
PFPES	0.19 U		0.38	0.19	0.060	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHXS	0.037 J		0.38	0.19	0.030	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHPS	0.19 U		0.38	0.19	0.049	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOS	0.19 U		0.38	0.19	0.061	ng/L	04/14/23	1	EPA 1633	BCD0119
PFNS	0.19 U		0.38	0.19	0.12	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDS	0.29 U		0.38	0.29	0.15	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDOS	0.19 U		0.38	0.19	0.12	ng/L	04/14/23	1	EPA 1633	BCD0119
4:2FTS	0.77 U		1.5	0.77	0.28	ng/L	04/14/23	1	EPA 1633	BCD0119
6:2FTS	0.77 U		1.5	0.77	0.30	ng/L	04/14/23	1	EPA 1633	BCD0119
8:2FTS	0.77 U		1.5	0.77	0.079	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOSA	0.19 U		0.38	0.19	0.10	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSA	0.77 U		1.5	0.77	0.45	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSA	0.77 U		1.5	0.77	0.40	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSAA	0.19 U		0.38	0.19	0.10	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSAA	0.19 U		0.38	0.19	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSE	1.2 U		1.5	1.2	0.97	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSE	1.2 U		1.5	1.2	1.0	ng/L	04/14/23	1	EPA 1633	BCD0119
HFPO-DA	0.38 U		0.77	0.38	0.17	ng/L	04/14/23	1	EPA 1633	BCD0119
ADONA	0.38 U		0.77	0.38	0.12	ng/L	04/14/23	1	EPA 1633	BCD0119
PFEESA	0.38 U		0.77	0.38	0.10	ng/L	04/14/23	1	EPA 1633	BCD0119
PFMPA	0.38 U		0.77	0.38	0.052	ng/L	04/14/23	1	EPA 1633	BCD0119
PFMBA	0.38 U		0.77	0.38	0.087	ng/L	04/14/23	1	EPA 1633	BCD0119
NFDHA	0.38 U		0.77	0.38	0.29	ng/L	04/14/23	1	EPA 1633	BCD0119
9CL-PF3ONS	0.38 U		0.77	0.38	0.20	ng/L	04/14/23	1	EPA 1633	BCD0119
11CL-PF3OUDS	0.38 U		0.77	0.38	0.20	ng/L	04/14/23	1	EPA 1633	BCD0119
3:3FTCA	0.77 U		1.5	0.77	0.55	ng/L	04/14/23	1	EPA 1633	BCD0119
5:3FTCA	0.77 U		1.5	0.77	0.43	ng/L	04/14/23	1	EPA 1633	BCD0119
7:3FTCA	0.77 U		1.5	0.77	0.53	ng/L	04/14/23	1	EPA 1633	BCD0119
Surrogate: 13C4-PFBA	*97.0%*		*10-130*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C5-PFPEA	*85.1%*		*35-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C5-PFHXA	*89.3%*		*55-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C4-PFHPA	*93.9%*		*55-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOA	*89.7%*		*60-140*				*04/14/23*	1	*EPA 1633*	*BCD0119*

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Sample Results
(Continued)

Sample: AF-HDMW225303-WGN01LF-2304W1 (Continued)
23D0043-02 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*101%*			*55-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C6-PFDA	*96.9%*			*50-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C7-PFUnA	*104%*			*30-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-PFDOA	*98.0%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-PFTEDA	*91.6%*			*10-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-PFBS	*93.7%*			*55-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-PFHXS	*96.9%*			*55-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOS	*94.3%*			*45-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-4:2FTS	*110%*			*60-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-6:2FTS	*127%*			*60-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-8:2FTS	*95.7%*			*50-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOSA	*83.4%*			*30-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D3-NMEFOSA	*48.6%*			*15-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D5-NETFOSA	*51.1%*			*10-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D3-NMEFOSAA	*87.5%*			*45-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D5-NETFOSAA	*85.1%*			*10-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D7-NMEFOSE	*75.5%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D9-NETFOSE	*82.8%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-HFPO-DA	*85.0%*			*25-160*			*04/14/23*	1	*EPA 1633*	*BCD0119*

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Sample Results

(Continued)

Sample: AF-RHMW10-WGN01LF-2304W1
23D0043-03 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.76	U	1.5	0.76	0.20	ng/L	04/14/23	1	EPA 1633	BCD0119
PFPEA	0.38	U	0.76	0.38	0.062	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHXA	0.19	U	0.38	0.19	0.052	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHPA	0.19	U	0.38	0.19	0.039	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOA	0.29	U	0.38	0.29	0.15	ng/L	04/14/23	1	EPA 1633	BCD0119
PFNA	0.19	U	0.38	0.19	0.078	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDA	0.19	U	0.38	0.19	0.097	ng/L	04/14/23	1	EPA 1633	BCD0119
PFUnA	0.29	U	0.38	0.29	0.15	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDOA	0.19	U	0.38	0.19	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
PFTRDA	0.29	U	0.38	0.29	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
PFTEDA	0.29	U	0.38	0.29	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
PFBS	0.19	U	0.38	0.19	0.035	ng/L	04/14/23	1	EPA 1633	BCD0119
PFPES	0.19	U	0.38	0.19	0.060	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHXS	0.19	U	0.38	0.19	0.030	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHPS	0.19	U	0.38	0.19	0.049	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOS	0.19	U	0.38	0.19	0.061	ng/L	04/14/23	1	EPA 1633	BCD0119
PFNS	0.19	U	0.38	0.19	0.12	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDS	0.29	U	0.38	0.29	0.14	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDOS	0.19	U	0.38	0.19	0.12	ng/L	04/14/23	1	EPA 1633	BCD0119
4:2FTS	0.76	U	1.5	0.76	0.28	ng/L	04/14/23	1	EPA 1633	BCD0119
6:2FTS	0.76	U	1.5	0.76	0.30	ng/L	04/14/23	1	EPA 1633	BCD0119
8:2FTS	0.76	U	1.5	0.76	0.078	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOSA	0.19	U	0.38	0.19	0.099	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSA	0.76	U	1.5	0.76	0.45	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSA	0.76	U	1.5	0.76	0.39	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSAA	0.19	U	0.38	0.19	0.10	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSAA	0.19	U	0.38	0.19	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSE	1.1	U	1.5	1.1	0.97	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSE	1.1	U	1.5	1.1	1.0	ng/L	04/14/23	1	EPA 1633	BCD0119
HFPO-DA	0.38	U	0.76	0.38	0.17	ng/L	04/14/23	1	EPA 1633	BCD0119
ADONA	0.38	U	0.76	0.38	0.12	ng/L	04/14/23	1	EPA 1633	BCD0119
PFEESA	0.38	U	0.76	0.38	0.10	ng/L	04/14/23	1	EPA 1633	BCD0119
PFMPA	0.38	U	0.76	0.38	0.052	ng/L	04/14/23	1	EPA 1633	BCD0119
PFMBA	0.38	U	0.76	0.38	0.087	ng/L	04/14/23	1	EPA 1633	BCD0119
NFDHA	0.38	U	0.76	0.38	0.29	ng/L	04/14/23	1	EPA 1633	BCD0119
9CL-PF3ONS	0.38	U	0.76	0.38	0.20	ng/L	04/14/23	1	EPA 1633	BCD0119
11CL-PF3OUDS	0.38	U	0.76	0.38	0.20	ng/L	04/14/23	1	EPA 1633	BCD0119
3:3FTCA	0.76	U	1.5	0.76	0.55	ng/L	04/14/23	1	EPA 1633	BCD0119
5:3FTCA	0.76	U	1.5	0.76	0.42	ng/L	04/14/23	1	EPA 1633	BCD0119
7:3FTCA	0.76	U	1.5	0.76	0.53	ng/L	04/14/23	1	EPA 1633	BCD0119
Surrogate: 13C4-PFBA	*93.8%*		*10-130*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C5-PFPEA	*90.8%*		*35-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C5-PFHXA	*89.6%*		*55-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C4-PFHPA	*89.9%*		*55-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOA	*89.6%*		*60-140*				*04/14/23*	1	*EPA 1633*	*BCD0119*

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Sample Results
(Continued)

Sample: AF-RHMW10-WGN01LF-2304W1 (Continued)
23D0043-03 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*92.9%*			*55-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C6-PFDA	*84.8%*			*50-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C7-PFUnA	*80.5%*			*30-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-PFDOA	*84.8%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-PFTEDA	*78.2%*			*10-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-PFBS	*76.1%*			*55-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-PFHXS	*86.4%*			*55-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOS	*91.0%*			*45-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-4:2FTS	*92.5%*			*60-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-6:2FTS	*106%*			*60-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-8:2FTS	*78.2%*			*50-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOSA	*61.2%*			*30-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D3-NMEFOSA	*35.6%*			*15-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D5-NETFOSA	*28.8%*			*10-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D3-NMEFOSAA	*80.2%*			*45-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D5-NETFOSAA	*82.7%*			*10-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D7-NMEFOSE	*39.1%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D9-NETFOSE	*44.0%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-HFPO-DA	*88.3%*			*25-160*			*04/14/23*	1	*EPA 1633*	*BCD0119*

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Sample Results

(Continued)

Sample: AF-RHMW10-WGFD01LF-2304W1
23D0043-04 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.74	U	1.5	0.74	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
PFPEA	0.37	U	0.74	0.37	0.060	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHXA	0.18	U	0.37	0.18	0.050	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHPA	0.18	U	0.37	0.18	0.038	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOA	0.28	U	0.37	0.28	0.14	ng/L	04/14/23	1	EPA 1633	BCD0119
PFNA	0.18	U	0.37	0.18	0.075	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDA	0.18	U	0.37	0.18	0.093	ng/L	04/14/23	1	EPA 1633	BCD0119
PFUnA	0.28	U	0.37	0.28	0.15	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDOA	0.18	U	0.37	0.18	0.10	ng/L	04/14/23	1	EPA 1633	BCD0119
PFTRDA	0.28	U	0.37	0.28	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
PFTEDA	0.28	U	0.37	0.28	0.18	ng/L	04/14/23	1	EPA 1633	BCD0119
PFBS	0.18	U	0.37	0.18	0.034	ng/L	04/14/23	1	EPA 1633	BCD0119
PFPES	0.18	U	0.37	0.18	0.058	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHXS	0.18	U	0.37	0.18	0.029	ng/L	04/14/23	1	EPA 1633	BCD0119
PFHPS	0.18	U	0.37	0.18	0.047	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOS	0.18	U	0.37	0.18	0.058	ng/L	04/14/23	1	EPA 1633	BCD0119
PFNS	0.18	U	0.37	0.18	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDS	0.28	U	0.37	0.28	0.14	ng/L	04/14/23	1	EPA 1633	BCD0119
PFDOS	0.18	U	0.37	0.18	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
4:2FTS	0.74	U	1.5	0.74	0.27	ng/L	04/14/23	1	EPA 1633	BCD0119
6:2FTS	0.74	U	1.5	0.74	0.29	ng/L	04/14/23	1	EPA 1633	BCD0119
8:2FTS	0.74	U	1.5	0.74	0.075	ng/L	04/14/23	1	EPA 1633	BCD0119
PFOSA	0.18	U	0.37	0.18	0.096	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSA	0.74	U	1.5	0.74	0.43	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSA	0.74	U	1.5	0.74	0.38	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSAA	0.18	U	0.37	0.18	0.097	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSAA	0.18	U	0.37	0.18	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
NMeFOSE	1.1	U	1.5	1.1	0.93	ng/L	04/14/23	1	EPA 1633	BCD0119
NEtFOSE	1.1	U	1.5	1.1	0.96	ng/L	04/14/23	1	EPA 1633	BCD0119
HFPO-DA	0.37	U	0.74	0.37	0.16	ng/L	04/14/23	1	EPA 1633	BCD0119
ADONA	0.37	U	0.74	0.37	0.11	ng/L	04/14/23	1	EPA 1633	BCD0119
PFEESA	0.37	U	0.74	0.37	0.10	ng/L	04/14/23	1	EPA 1633	BCD0119
PFMPA	0.37	U	0.74	0.37	0.050	ng/L	04/14/23	1	EPA 1633	BCD0119
PFMBA	0.37	U	0.74	0.37	0.083	ng/L	04/14/23	1	EPA 1633	BCD0119
NFDHA	0.37	U	0.74	0.37	0.28	ng/L	04/14/23	1	EPA 1633	BCD0119
9CL-PF3ONS	0.37	U	0.74	0.37	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
11CL-PF3OUDS	0.37	U	0.74	0.37	0.19	ng/L	04/14/23	1	EPA 1633	BCD0119
3:3FTCA	0.74	U	1.5	0.74	0.53	ng/L	04/14/23	1	EPA 1633	BCD0119
5:3FTCA	0.74	U	1.5	0.74	0.41	ng/L	04/14/23	1	EPA 1633	BCD0119
7:3FTCA	0.74	U	1.5	0.74	0.51	ng/L	04/14/23	1	EPA 1633	BCD0119
Surrogate: 13C4-PFBA	*92.0%*		*10-130*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C5-PFPEA	*95.7%*		*35-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C5-PFHXA	*94.7%*		*55-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C4-PFHPA	*96.6%*		*55-150*				*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOA	*90.5%*		*60-140*				*04/14/23*	1	*EPA 1633*	*BCD0119*

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Sample Results
(Continued)

Sample: AF-RHMW10-WGFD01LF-2304W1 (Continued)
23D0043-04 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*90.6%*			*55-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C6-PFDA	*89.3%*			*50-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C7-PFUnA	*89.7%*			*30-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-PFDOA	*87.1%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-PFTEDA	*71.2%*			*10-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-PFBS	*93.7%*			*55-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-PFHXS	*97.7%*			*55-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOS	*85.3%*			*45-140*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-4:2FTS	*113%*			*60-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-6:2FTS	*116%*			*60-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C2-8:2FTS	*87.6%*			*50-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C8-PFOSA	*69.3%*			*30-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D3-NMEFOSA	*40.4%*			*15-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D5-NETFOSA	*31.3%*			*10-130*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D3-NMEFOSAA	*77.9%*			*45-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D5-NETFOSAA	*74.7%*			*10-200*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D7-NMEFOSE	*46.6%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: D9-NETFOSE	*57.6%*			*10-150*			*04/14/23*	1	*EPA 1633*	*BCD0119*
Surrogate: 13C3-HFPO-DA	*86.9%*			*25-160*			*04/14/23*	1	*EPA 1633*	*BCD0119*

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Quality Control

Per- and Polyfluoroalkyl Substances

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Method: EPA 1633										
Batch: BCD0119 - EPA 1633										
Blank (BCD0119-BLK1)										
	ng/L									
PFBA	0.80 U	1.6	0.80	0.21						
PFPEA	0.40 U	0.80	0.40	0.065						
PFHXA	0.20 U	0.40	0.20	0.055						
PFHPA	0.20 U	0.40	0.20	0.041						
PFOA	0.30 U	0.40	0.30	0.15						
PFNA	0.20 U	0.40	0.20	0.082						
PFDA	0.20 U	0.40	0.20	0.10						
PFUnA	0.30 U	0.40	0.30	0.16						
PFDOA	0.20 U	0.40	0.20	0.11						
PFTRDA	0.30 U	0.40	0.30	0.20						
PFTEDA	0.30 U	0.40	0.30	0.20						
PFBS	0.20 U	0.40	0.20	0.037						
PFPES	0.20 U	0.40	0.20	0.063						
PFHXS	0.20 U	0.40	0.20	0.032						
PFHPS	0.20 U	0.40	0.20	0.051						
PFOS	0.166 J MI2,	0.40	0.20	0.064						
PFNS	0.20 U	0.40	0.20	0.12						
PFDS	0.30 U	0.40	0.30	0.15						
PFDOS	0.20 U	0.40	0.20	0.12						
4:2FTS	0.80 U	1.6	0.80	0.29						
6:2FTS	0.80 U	1.6	0.80	0.31						
8:2FTS	0.80 U	1.6	0.80	0.082						
PFOSA	0.20 U	0.40	0.20	0.10						
NMeFOSA	0.80 U	1.6	0.80	0.47						
NEtFOSA	0.80 U	1.6	0.80	0.41						
NMeFOSAA	0.20 U	0.40	0.20	0.11						
NEtFOSAA	0.20 U	0.40	0.20	0.11						
NMeFOSE	1.2 U	1.6	1.2	1.0						
NEtFOSE	1.2 U	1.6	1.2	1.0						
HFPO-DA	0.40 U	0.80	0.40	0.17						
ADONA	0.40 U	0.80	0.40	0.12						
PFEESA	0.40 U	0.80	0.40	0.11						
PFMPA	0.40 U	0.80	0.40	0.054						
PFMBA	0.40 U	0.80	0.40	0.091						
NFDHA	0.40 U	0.80	0.40	0.30						
9CL-PF3ONS	0.40 U	0.80	0.40	0.21						
11CL-PF3OUDS	0.40 U	0.80	0.40	0.21						
3:3FTCA	0.80 U	1.6	0.80	0.57						
5:3FTCA	0.80 U	1.6	0.80	0.44						
7:3FTCA	0.80 U	1.6	0.80	0.55						
Surrogates										
13C4-PFBA	*28.6*				*32.0*		*89.3*	*10-130*		
13C5-PFPEA	*14.1*				*16.0*		*88.4*	*35-150*		
13C5-PFHXA	*7.08*				*8.00*		*88.5*	*55-150*		

Prepared: 04/10/23 08:18 Analyzed: 04/14/23 15:47

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Blank (BCD0119-BLK1)						Prepared: 04/10/23 08:18 Analyzed: 04/14/23 15:47				
	ng/L									
Surrogates										
13C4-PFHPA	*7.72*				*8.00*		*96.5*	*55-150*		
13C8-PFOA	*7.13*				*8.00*		*89.2*	*60-140*		
13C9-PFNA	*3.40*				*4.00*		*84.9*	*55-140*		
13C6-PFDA	*3.06*				*4.00*		*76.6*	*50-140*		
13C7-PFUnA	*3.33*				*4.00*		*83.1*	*30-140*		
13C2-PFDOA	*3.21*				*4.00*		*80.2*	*10-150*		
13C2-PFTEDA	*2.63*				*4.00*		*65.7*	*10-130*		
13C3-PFBS	*6.14*				*8.00*		*76.8*	*55-150*		
13C3-PFHXS	*6.83*				*8.00*		*85.4*	*55-150*		
13C8-PFOS	*6.55*				*8.00*		*81.9*	*45-140*		
13C2-4:2FTS	*13.5*				*16.0*		*84.6*	*60-200*		
13C2-6:2FTS	*13.9*				*16.0*		*86.9*	*60-200*		
13C2-8:2FTS	*11.4*				*16.0*		*71.1*	*50-200*		
13C8-PFOSA	*5.40*				*8.00*		*67.4*	*30-130*		
D3-NMEFOSA	*2.09*				*8.00*		*26.1*	*15-130*		
D5-NETFOSA	*1.78*				*8.00*		*22.3*	*10-130*		
D3-NMEFOSAA	*11.2*				*16.0*		*69.8*	*45-200*		
D5-NETFOSAA	*10.5*				*16.0*		*65.9*	*10-200*		
D7-NMEFOSE	*37.1*				*80.0*		*46.3*	*10-150*		
D9-NETFOSE	*41.3*				*80.0*		*51.7*	*10-150*		
13C3-HFPO-DA	*25.8*				*32.0*		*80.5*	*25-160*		
LCS (BCD0119-BS1)						Prepared: 04/10/23 08:18 Analyzed: 04/14/23 16:00				
	ng/L									
PFBA	16.2				16.0		101	58-148		
PFPEA	7.80				8.00		97.5	54-152		
PFHXA	4.00				4.00		99.9	55-152		
PFHPA	4.25				4.00		106	54-154		
PFOA	4.07				4.00		102	52-161		
PFNA	4.03				4.00		101	59-149		
PFDA	3.70				4.00		92.6	52-147		
PFUnA	3.66				4.00		91.5	48-159		
PFDOA	4.35				4.00		109	64-142		
PFTRDA	3.99				4.00		99.8	49-148		
PFTEDA	4.44				4.00		111	47-161		
PFBS	3.43				3.54		96.8	62-144		
PFPES	3.83				3.76		102	59-151		
PFHXS	3.64				3.66		99.5	57-146		
PFHPS	4.01				3.82		105	55-152		
PFOS	3.74				3.72		100	58-149		
PFNS	3.55				3.84		92.5	52-148		
PFDS	3.21				3.86		83.2	51-147		
PFDOS	3.19				3.88		82.1	36-145		
4:2FTS	14.4				15.0		96.1	67-146		
6:2FTS	17.2				15.2		113	61-151		
8:2FTS	14.9				15.4		97.0	63-152		
PFOSA	4.73				4.00		118	61-148		

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS (BCD0119-BS1)						Prepared: 04/10/23 08:18		Analyzed: 04/14/23 16:00		
	ng/L									
NMeFOSA	15.6				16.0		97.7	63-145		
NEtFOSA	15.4				16.0		96.6	65-139		
NMeFOSAA	3.67				4.00		91.8	58-144		
NEtFOSAA	3.58				4.00		89.5	59-146		
NMeFOSE	17.2				16.0		107	71-136		
NEtFOSE	15.7				16.0		97.9	69-137		
HFPO-DA	7.95				8.00		99.4	63-144		
ADONA	8.44				7.56		112	68-146		
PFEESA	6.95				7.12		97.6	56-151		
PFMPA	8.79				8.00		110	51-145		
PFMBA	7.79				8.00		97.3	55-148		
NFDHA	7.68				8.00		96.0	48-161		
9CL-PF3ONS	7.99				7.48		107	56-156		
11CL-PF3OUDS	7.13				7.56		94.3	46-156		
3:3FTCA	16.1				16.0		100	62-129		
5:3FTCA	14.8				16.0		92.7	63-134		
7:3FTCA	15.5				16.0		97.0	50-138		
Surrogates										
13C4-PFBA	*31.0*				*32.0*		*97.0*	*10-130*		
13C5-PFPEA	*15.8*				*16.0*		*98.8*	*35-150*		
13C5-PFHXA	*7.79*				*8.00*		*97.4*	*55-150*		
13C4-PFHPA	*8.39*				*8.00*		*105*	*55-150*		
13C8-PFOA	*7.98*				*8.00*		*99.8*	*60-140*		
13C9-PFNA	*3.88*				*4.00*		*97.1*	*55-140*		
13C6-PFDA	*3.94*				*4.00*		*98.4*	*50-140*		
13C7-PFUnA	*4.37*				*4.00*		*109*	*30-140*		
13C2-PFDOA	*3.91*				*4.00*		*97.8*	*10-150*		
13C2-PFTEDA	*3.33*				*4.00*		*83.2*	*10-130*		
13C3-PFBS	*7.22*				*8.00*		*90.2*	*55-150*		
13C3-PFHXS	*7.61*				*8.00*		*95.1*	*55-150*		
13C8-PFOS	*7.11*				*8.00*		*88.9*	*45-140*		
13C2-4:2FTS	*15.1*				*16.0*		*94.3*	*60-200*		
13C2-6:2FTS	*15.8*				*16.0*		*98.5*	*60-200*		
13C2-8:2FTS	*14.9*				*16.0*		*93.3*	*50-200*		
13C8-PFOSA	*5.71*				*8.00*		*71.4*	*30-130*		
D3-NMEFOSA	*2.94*				*8.00*		*36.7*	*15-130*		
D5-NETFOSA	*3.10*				*8.00*		*38.8*	*10-130*		
D3-NMEFOSAA	*12.2*				*16.0*		*76.3*	*45-200*		
D5-NETFOSAA	*11.6*				*16.0*		*72.3*	*10-200*		
D7-NMEFOSE	*35.5*				*80.0*		*44.3*	*10-150*		
D9-NETFOSE	*63.2*				*80.0*		*79.0*	*10-150*		
13C3-HFPO-DA	*29.1*				*32.0*		*90.8*	*25-160*		

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MRL Check (BCD0119-MRL1)						Prepared: 04/10/23 08:18		Analyzed: 04/14/23 16:12		
	ng/L									
PFBA	1.42 J				1.60		88.7	44-157		
PFPEA	0.746 J				0.800		93.3	57-148		
PFHXA	0.462				0.400		116	62-149		
PFHPA	0.483 IR2				0.400		121	56-150		
PFOA	0.523				0.400		131	57-161		
PFNA	0.440				0.400		110	53-157		
PFDA	0.477 IR1				0.400		119	43-158		
PFUnA	0.306 J				0.400		76.6	50-155		
PFDOA	0.412				0.400		103	60-141		
PFTRDA	0.365 J				0.400		91.3	52-140		
PFTEDA	0.406				0.400		101	52-156		
PFBS	0.309 J				0.354		87.4	63-145		
PFPES	0.330 J				0.376		87.8	58-144		
PFHXS	0.384 J				0.366		105	44-158		
PFHPS	0.353 J				0.382		92.4	51-150		
PFOS	0.450 MI2				0.372		121	43-162		
PFNS	0.340 J				0.384		88.5	46-151		
PFDS	0.324 J				0.386		83.9	50-144		
PFDOS	0.282 J				0.388		72.6	30-138		
4:2FTS	1.36 J				1.50		90.9	52-158		
6:2FTS	2.39				1.52		157	48-158		
8:2FTS	1.41 J				1.54		92.0	46-165		
PFOSA	0.498				0.400		125	47-163		
NMeFOSA	1.53 J				1.60		95.7	54-155		
NEtFOSA	1.40 J				1.60		87.7	49-156		
NMeFOSAA	0.322 J				0.400		80.4	32-160		
NEtFOSAA	0.348 J				0.400		86.9	51-154		
NMeFOSE	1.42 J				1.60		88.5	56-151		
NEtFOSE	1.34 J				1.60		84.0	60-147		
HFPO-DA	0.742 J				0.800		92.8	58-154		
ADONA	0.761 J				0.756		101	61-148		
PFEESA	0.581 J				0.712		81.6	56-144		
PFMPA	0.802				0.800		100	48-150		
PFMBA	0.860				0.800		108	49-154		
NFDHA	0.650 J				0.800		81.2	47-160		
9CL-PF3ONS	0.615 J				0.748		82.2	44-167		
11CL-PF3OUDS	0.703 J				0.756		93.0	36-158		
3:3FTCA	1.39 J				1.60		86.8	32-161		
5:3FTCA	1.63				1.60		102	39-156		
7:3FTCA	1.61				1.60		101	36-149		
Surrogates										
13C4-PFBA	*31.7*				*32.0*		*99.2*	*10-130*		
13C5-PFPEA	*15.8*				*16.0*		*98.7*	*35-150*		
13C5-PFHXA	*7.90*				*8.00*		*98.7*	*55-150*		
13C4-PFHPA	*8.14*				*8.00*		*102*	*55-150*		
13C8-PFOA	*7.52*				*8.00*		*94.0*	*60-140*		
13C9-PFNA	*3.46*				*4.00*		*86.5*	*55-140*		

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MRL Check (BCD0119-MRL1)						Prepared: 04/10/23 08:18		Analyzed: 04/14/23 16:12		
	ng/L									
Surrogates										
13C6-PFDA	*3.62*				*4.00*		*90.4*	*50-140*		
13C7-PFUnA	*3.90*				*4.00*		*97.5*	*30-140*		
13C2-PFDOA	*3.89*				*4.00*		*97.3*	*10-150*		
13C2-PFTEDA	*3.58*				*4.00*		*89.4*	*10-130*		
13C3-PFBS	*6.52*				*8.00*		*81.5*	*55-150*		
13C3-PFHXS	*7.64*				*8.00*		*95.5*	*55-150*		
13C8-PFOS	*7.08*				*8.00*		*88.5*	*45-140*		
13C2-4:2FTS	*15.2*				*16.0*		*94.9*	*60-200*		
13C2-6:2FTS	*15.9*				*16.0*		*99.6*	*60-200*		
13C2-8:2FTS	*13.3*				*16.0*		*83.1*	*50-200*		
13C8-PFOSA	*5.82*				*8.00*		*72.8*	*30-130*		
D3-NMEFOSA	*2.70*				*8.00*		*33.8*	*15-130*		
D5-NETFOSA	*2.79*				*8.00*		*34.9*	*10-130*		
D3-NMEFOSAA	*13.0*				*16.0*		*81.3*	*45-200*		
D5-NETFOSAA	*12.1*				*16.0*		*75.4*	*10-200*		
D7-NMEFOSE	*51.0*				*80.0*		*63.8*	*10-150*		
D9-NETFOSE	*59.3*				*80.0*		*74.1*	*10-150*		
13C3-HFPO-DA	*30.4*				*32.0*		*94.9*	*25-160*		

APPL, LLC - 908 N. Temperance Ave., Clovis, CA 93611

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling / 60697810	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 04/17/2023 11:30

Notes and Definitions

Item	Definition
CV2	Calibration verification recovered above the upper control limit
E	Response exceeds linear range
IR1	Ion ratio below the lower control limit
IR2	Ion ratio above the upper control limit
IS1	Internal standard recovered below the lower control limit
J	Estimated value
MI2	Manual integration, non-target peak interference
S1	Surrogate recovered below the lower control limit
S2	Surrogate recovered above the upper control limit
U	Not detected
Dry	Sample results reported on a dry weight basis.
DF	Dilution Factor
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
*	Value outside control limits
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.

LOQ, Limit of Quantitation = Method Reporting Limit (MRL).

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

WORK ORDER

23D0043

Printed: 04/17/2023 11:31 am

Project: **Red Hill AFFF Assessment Sampling**
Project Number: **Red Hill AFFF Assessment Sampling / 60697810**
Project Manager: **Karen Volpendesta**
PO Number: **150712**

Report To:
AECOM Honolulu
Watson Tanji
1001 Bishop Street, Suite 1600
Honolulu, HI 96813
Phone: (808) 954-4512
Fax: (808) 523-8950

Invoice To:
AECOM Honolulu
Watson Tanji
1001 Bishop Street, Suite 1600
Honolulu, HI 96813
Phone: (808) 954-4512
Fax: (808) 523-8950

Date Received: 04/06/2023 10:00 AM
Date Due: 04/13/2023 (5.00 day TAT)

Logged In By: Megan Salata
Received By: Megan Salata

Analysis		Comments
23D0043-01 AF-RHMW225401-WGN01B-2304W1 [Water] Sampled 4/5/2023 9:00:00AM		
1633	NONE	"Report relevant surrogates"
23D0043-02 AF-HDMW225303-WGN01LF-2304W1 [Water] Sampled 4/4/2023 10:15:00AM		
1633	NONE	"Report relevant surrogates"
23D0043-03 AF-RHMW10-WGN01LF-2304W1 [Water] Sampled 4/4/2023 1:00:00PM		
1633	NONE	"Report relevant surrogates"
23D0043-04 AF-RHMW10-WGFD01LF-2304W1 [Water] Sampled 4/4/2023 1:00:00PM		
1633	NONE	"Report relevant surrogates"

23D0043 **Sample Receipt Log**

Default Cooler

Samples Received at: **-0.3°C**

Custody Seals	Yes	Were all containers sealed in separate bags?	Yes
Containers Intact	Yes	Did all containers arrive in good condition?	Yes
COC/Labels Agree	Yes	Correct containers/preserv. for tests indicated?	Yes
Preservation Confirmed	No	Sufficient volume sent for tests requested?	Yes
Received On Ice	Yes	Were bubbles absent in volatile samples?	No
Was a chain of custody received?	Yes	Sufficient remaining holding time for analyses?	Yes
COCs complete/signed in the appropriate places?	Yes	pH of non-VOA preserved containers documented?	No
Sample labels complete? Sample ID, date/time, etc.	Yes	Unpreserved vials received for VOA analysis?	No
Did all container labels agree with COCs?	Yes	If "yes", are unpreserved VOA vials noted on ARF?	No

APPL, Inc.
908 N Temperance Ave
Clovis, CA 93611
www.applinc.com

ELECTRONIC CHAIN OF CUSTODY RECORD 23D0043
Phone: (559) 275-2175
Fax: (559) 275-4422
coc@applinc.com C.O.C. 2304W1AFAL07

Report to: PLEASE PRINT		Invoice to: PLEASE PRINT	
Company Name: AECOM	Phone: 808-954-4512 / 303-796-4624	Company Name: AECOM	Phone:
Address: 1001 Bishop St ste1600 Honolulu, HI 96813	Fax:	Address:	Fax:
Attn: Watson Tanji / Katie Abbott		Attn: Sheree Smith	
Email: watson.tanji@aecom.com/katie.abbott@aecom.com		Email: USAPimaging@aecom.com	

Project Name/Number	Sampler (Print)	Purchase Order Number	Sampler (Signature)
CTO N6274223F0104 / 60697810	Nate Hogsten		

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Matrix: Sed.	Matrix: Soil	Analysis Requested/Method Number: PFAS EPA Draft 1633
AF-RHMW225401-WGN01B-2304W1	RHMW2254-01	4/5/23	0900	HST	2	✔			✔

Date Shipped: 4/5/23
Carrier: FEDEX
Waybill No.:
Comments: EDMS upload database: JBPHE
EDMS Coverage: AFFF Assessment Sampling GW

MN 4/5/23

Page 21 of 441 23D0043 APPL_L4_DOD (Rev0).PDF

Table of Contents

Bottle Temperature: IB 2.3/-0.3°C

Turnaround Requested: Check one
☐ Standard 2-3 wk ☐ One week ☐ 3 days ☐ 24/48 Hrs. ✔ Other: 5 day TAT

Sample Disposal:
☐ Return to client ☐ Disposal by Lab (30-day retention)

Relinquished by sampler:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
	4/5/23	1210	Miranda DeGarmo	Miranda DeGarmo	4/5/23	1220	
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					4/6/23	1000	

Note: The first sampled date of the ARF will be used as the COC number unless indicated otherwise.

APPL, Inc.
908 N Temperance Ave
Clovis, CA 93611
www.applinc.com

ELECTRONIC CHAIN OF CUSTODY RECORD

Phone: (559) 275-2175
Fax: (559) 275-4422
coc@applinc.com

C.O.C. 2304W1AFAL04

Report to: PLEASE PRINT		Invoice to: PLEASE PRINT	
Company Name: AECOM	Phone: 808-954-4512 / 303-796-4624	Company Name: AECOM	Phone:
Address: 1001 Bishop St ste1600 Honolulu, HI 96813	Fax:	Address:	Fax:
Attn: Watson Tanji / Katie Abbott		Attn: Sheree Smith	
Email: mark.kromis@aecom.com/katie.abbott@aecom.com		Email: USAPimaging@aecom.com	

Project Name/Number	Sampler (Print)	Date Shipped: 4/5/23
CTO N6274223F0104 / 60697810	TESSA MURPHY	Carrier: FEDEX
Purchase Order Number	Sampler (Signature)	Waybill No.:
		Comments: EDMS upload database: JBPHE
		EDMS Coverage: AFFF Assessment Sampling GW

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Matrix: Sed.	Matrix: Soil	Matrix:	Analysis Requested/Method Number: PFAS EPA Draft 1633	Analysis Requested/Method Number: TM 4/4/23
AF-HDMW225303-WGN01LF-2304W1	HDMW2253-03	4/4/23	1015	HST	2	✔				✔	

TM 4/4/23

Bottle Temperature:

Turnaround Requested: Check one
☐ Standard 2-3 wk ☐ One week ☐ 3 days ☐ 24/48 Hrs. ✔ Other: 5 day TAT

Sample Disposal:
☐ Return to client ☐ Disposal by Lab (30-day retention)

Relinquished by sampler:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
TESSA MURPHY	4/4/23	1530	James Mason	James Mason	4/5/23	1220	
Relinquished by:	**Date**	**Time**	**Received by:**	**Relinquished by:**	**Date**	**Time**	**Received at lab by:**
					4/6/23	1000	

Note: The first sampled date of the ARF will be used as the COC number unless indicated otherwise.

Table of Contents

APPL, Inc.
908 N Temperance Ave
Clovis, CA 93611
www.applinc.com

ELECTRONIC CHAIN OF CUSTODY RECORD

Phone: (559) 275-2175
Fax: (559) 275-4422
coc@applinc.com

C.O.C. 2304W1AFAL03

Report to: PLEASE PRINT	Invoice to: PLEASE PRINT
Company Name: AECOM	Company Name: AECOM
Phone: 808-954-4512 / 303-796-4624	Phone:
Address: 1001 Bishop St ste1600 Honolulu, HI 96813	Address:
Fax:	Fax:
Attn: Watson Tanji / Katie Abbott	Attn: Sheree Smith
Email: watson.tanji@aecom.com/katie.abbott@aecom.com	Email: USAPimaging@aecom.com

Project Name/Number	Sampler (Print)
CTO N6274223F0104 / 60697810	TESSA MURPHY
Purchase Order Number	Sampler (Signature)
	Tessa Murphy

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Matrix: Sed.	Matrix: Soil	Analysis Requested/Method Number: PFAS EPA Draft 1633
AF-RHMW10-WGN01LF-2304W1	RHMW10	4/4/23	1300	HST	2	✔			✔
AF-RHMW10-WGFD01LF-2304W1	RHMW10	4/4/23	1300	HST	2	✔			✔

TM 4/4/23

TM 4/4/23

Date Shipped: 4/5/23
Carrier: FEDEX
Waybill No.: N/A
Comments: EDMS upload database: JBPHE
EDMS Coverage: AFFF Assessment Sampling GW

Bottle Temperature:

Turnaround Requested: Check one
☐ Standard 2-3 wk ☐ One week ☐ 3 days ☐ 24/48 Hrs. ✔ Other: 5 day TAT

Sample Disposal:
☐ Return to client ☐ Disposal by Lab (30-day retention)

Relinquished by sampler:	Date	Time	Received by:	Relinquished by:	Date	Time	Received by:
Tessa Murphy	4/4/23	1530	James Mason	James Mason	4/5/23	1220	
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					4/6/23	1000	

Note: The first sampled date of the ARF will be used as the COC number unless indicated otherwise.

Table of Contents

CUSTODY SEAL
AECOM (808)-521-3051

Initials: MD Date 4/5/23
1220

PFAS

SAMPLE DATA

FORM I
ANALYSIS DATA SHEET

AF-RHMW225401-WGN01B-2304W1

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23D0043-01	File ID:	S2023-04-14A (34)
Sampled:	04/05/23 09:00	Prepared:	04/10/23 08:18	Analyzed:	04/14/23 21:34
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	543.66 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.66 J	1.5	0.74	0.19	
PFPEA	1.1	0.74	0.37	0.060	
PFHXA	0.94	0.37	0.18	0.051	
PFHPA	0.68	0.37	0.18	0.038	
PFOA	0.96	0.37	0.28	0.14	
PFNA	0.14 J	0.37	0.18	0.075	
PFDA	0.18 U	0.37	0.18	0.093	
PFUnA	0.28 U	0.37	0.28	0.15	
PFDOA	0.18 U	0.37	0.18	0.10	
PFTRDA	0.28 U	0.37	0.28	0.19	
PFTEDA	0.28 U	0.37	0.28	0.18	
PFBS	0.75	0.37	0.18	0.034	
PFPES	0.11 J	0.37	0.18	0.058	
PFHXS	1.1	0.37	0.18	0.029	
PFHPS	0.18 U	0.37	0.18	0.047	
PFOS	1.1	0.37	0.18	0.058	
PFNS	0.18 U	0.37	0.18	0.11	
PFDS	0.28 U	0.37	0.28	0.14	
PFDOS	0.18 U	0.37	0.18	0.11	
4:2FTS	0.74 U	1.5	0.74	0.27	
6:2FTS	0.74 U	1.5	0.74	0.29	
8:2FTS	0.74 U	1.5	0.74	0.076	
PFOSA	0.18 U	0.37	0.18	0.096	
NMeFOSA	0.74 U	1.5	0.74	0.44	
NEtFOSA	0.74 U	1.5	0.74	0.38	
NMeFOSAA	0.18 U	0.37	0.18	0.097	
NEtFOSAA	0.18 U	0.37	0.18	0.11	
NMeFOSE	1.1 U	1.5	1.1	0.93	
NEtFOSE	1.1 U	1.5	1.1	0.96	
HFPO-DA	0.37 U	0.74	0.37	0.16	

FORM I
ANALYSIS DATA SHEET

AF-RHMW225401-WGN01B-2304W1

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23D0043-01	File ID:	S2023-04-14A (34)
Sampled:	04/05/23 09:00	Prepared:	04/10/23 08:18	Analyzed:	04/14/23 21:34
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	543.66 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014

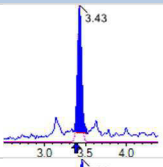
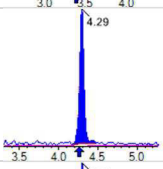
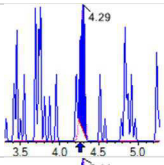
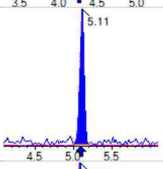
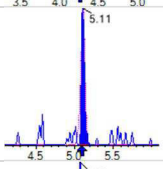
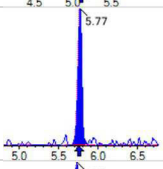
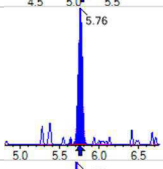
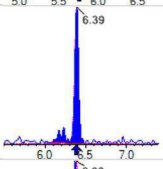
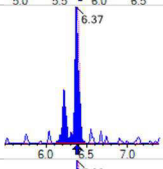
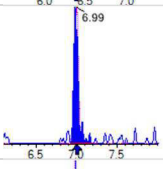
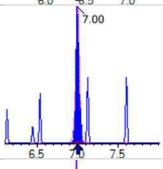
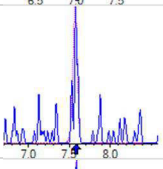
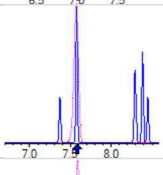
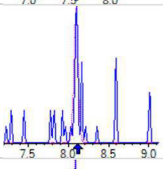
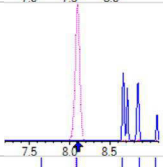
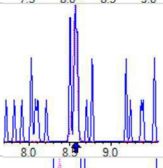
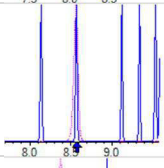
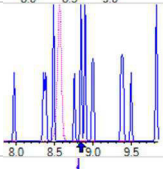
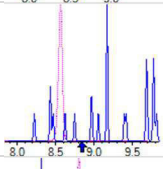
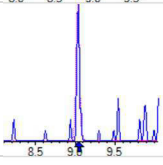
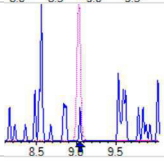
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.37 U	0.74	0.37	0.11	
PFEESA	0.37 U	0.74	0.37	0.10	
PFMPA	0.37 U	0.74	0.37	0.050	
PFMBA	0.37 U	0.74	0.37	0.083	
NFDHA	0.37 U	0.74	0.37	0.28	
9CL-PF3ONS	0.37 U	0.74	0.37	0.19	
11CL-PF3OUDS	0.37 U	0.74	0.37	0.19	
3:3FTCA	0.74 U	1.5	0.74	0.53	
5:3FTCA	0.74 U	1.5	0.74	0.41	
7:3FTCA	0.74 U	1.5	0.74	0.51	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (34)
Acquired: 2023/04/14 - 21:34

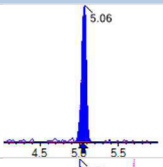
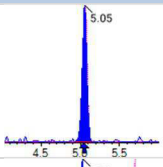
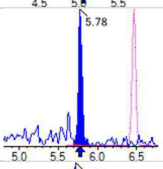
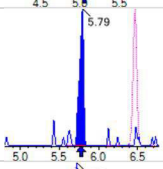
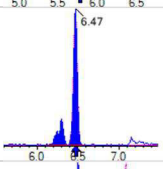
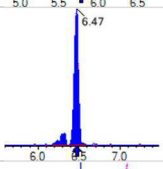
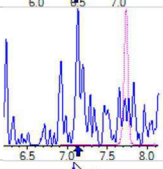
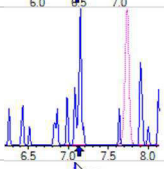
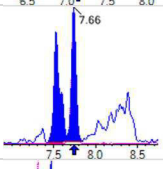
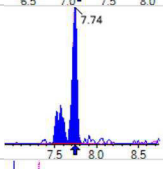
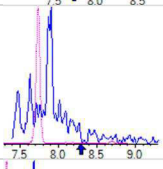
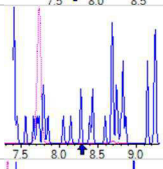
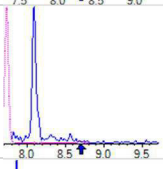
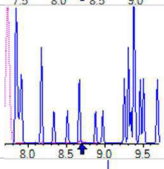
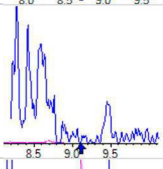
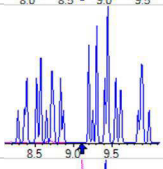
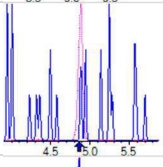
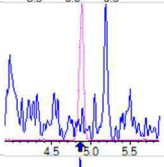
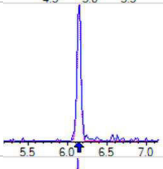
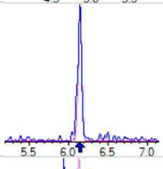
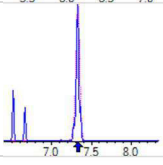
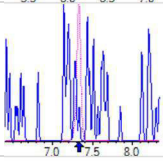
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 23512	(3.43 , 1.00) (0.00 , N/A , 0.0)	81.8	N/A 0.0 0.0	0.1785	N/A			
PFPeA	(263.0 / 219.0) 72300 (263.0 / 69.0) 836	(4.29 , 1.00) (0.00 , N/A , 0.0)	216.4 9.9	0.0116 88.1 98.8	0.3096	N/A			
PFHxA	(313.0 / 269.0) 82084 (313.0 / 119.0) 6608	(5.11 , 1.00) (0.00 , N/A , 0.3)	140.6 2384.2	0.0805 73.8 82.7	0.2561	N/A			
PFHpA	(363.0 / 319.0) 46743 (363.0 / 169.0) 17261	(5.77 , 1.00) (0.01 , N/A , 0.4)	226.2 936.2	0.3693 121.0 118.6	0.1851	N/A			
PFOA	(413.0 / 369.0) 92310 (413.0 / 169.0) 31644	(6.39 , 1.00) (0.00 , N/A , 0.9)	227.3 1080.5	0.3428 109.5 109.5	0.2622	N/A			
PFNA	(463.0 / 419.0) 12822 (463.0 / 169.0) 2848	(6.99 , 1.00) (-0.01 , N/A , -0.4)	437.5 785.5	0.2221 104.0 107.7	0.0388	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (34)
Acquired: 2023/04/14 - 21:34

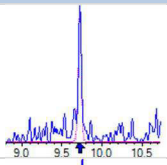
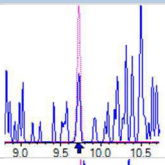
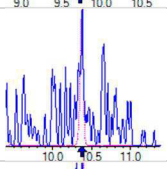
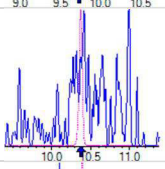
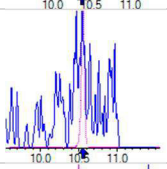
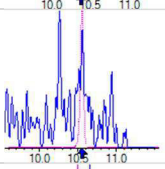
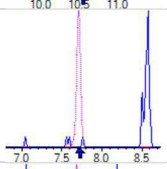
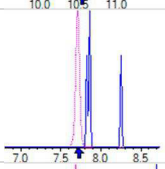
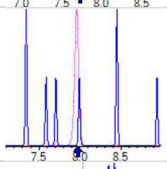
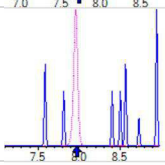
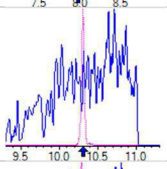
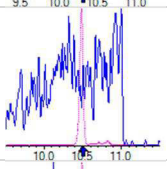
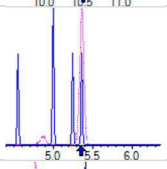
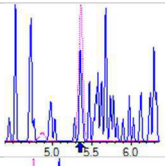
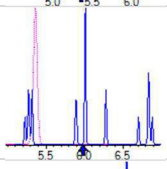
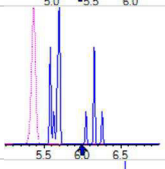
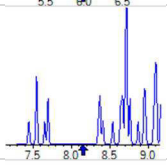
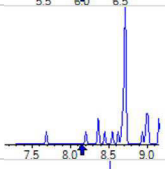
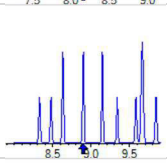
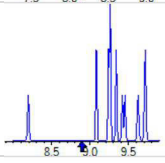
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 123590 (299.0 / 99.0) 76591	(5.06 , 1.00) (0.00 , N/A , 0.3)	363.2 360.8	0.6197 96.4 93.5	0.2032	N/A			
PFPeS	(349.0 / 80.0) 25825 (349.0 / 99.0) 7505	(5.78 , 0.89) (N/A , 0.01 , -0.6)	92.2 330.0	0.2906 85.7 83.6	0.0290	N/A			
PFHxS	(399.0 / 80.0) 222788 (399.0 / 99.0) 73807	(6.47 , 1.00) (0.00 , N/A , 0.1)	1071.6 2372.3	0.3313 95.7 96.1	0.2940	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) 343704 (499.0 / 99.0) 60850	(7.66 , 0.99) (-0.07 , N/A , -4.4)	82.8 276.2	0.1770 79.1 76.9	0.2965	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (34)
Acquired: 2023/04/14 - 21:34

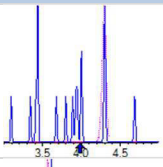
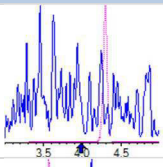
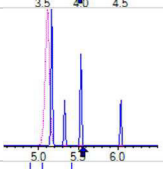
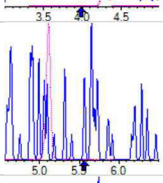
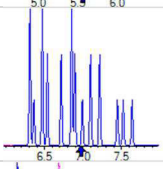
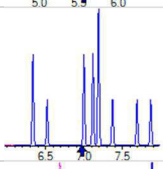
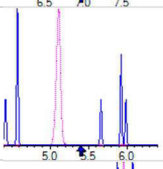
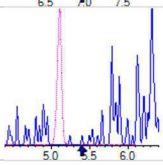
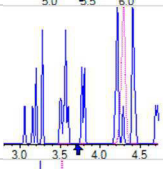
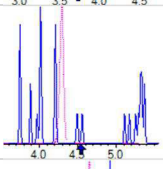
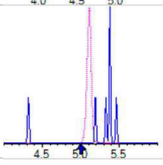
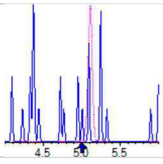
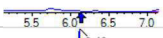
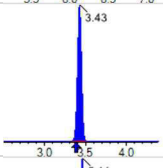
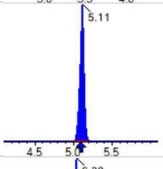
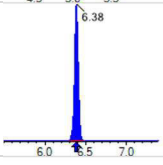
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (34)
Acquired: 2023/04/14 - 21:34

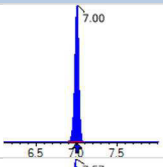
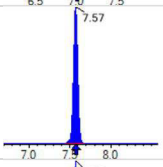
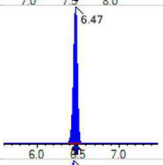
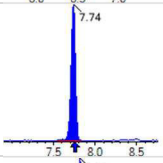
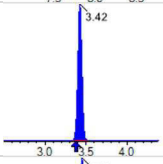
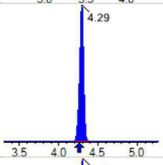
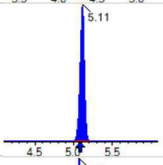
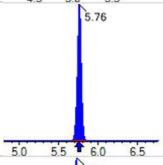
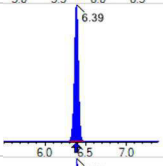
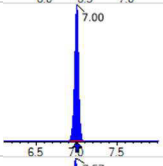
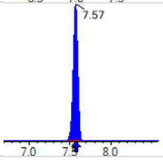
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 159963	(3.43 , N/A) (N/A , 0.06 , N/A)	1368.3	N/A	1.3122 [1.0000]	131.2% { 126.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 279231	(5.11 , N/A) (N/A , 0.03 , N/A)	1643.0	N/A	1.3767 [1.0000]	137.7% { 139.8% }			
13C4_PFOA_IIS	(417.0 / 372.0) 412261	(6.38 , N/A) (N/A , 0.00 , N/A)	6291.7	N/A	1.2973 [1.0000]	129.7% { 124.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (34)
Acquired: 2023/04/14 - 21:34

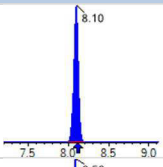
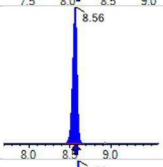
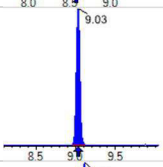
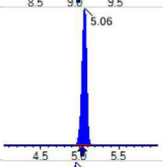
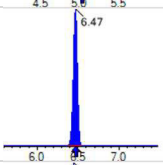
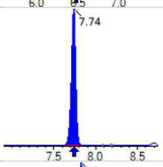
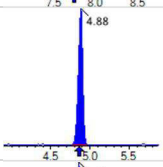
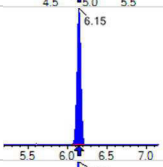
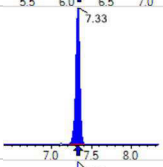
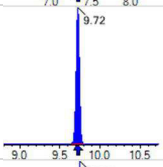
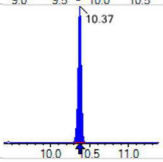
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 382512	(7.00 , N/A) (N/A , 0.00 , N/A)	4036.2	N/A	1.2603 [1.0000]	126.0% { 119.2% }			
13C2_PFDA_IIS	(515.0 / 470.1) 410955	(7.57 , N/A) (N/A , -0.01 , N/A)	1495.7	N/A	1.2665 [1.0000]	126.7% { 125.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 566822	(6.47 , N/A) (N/A , 0.00 , N/A)	1984.1	N/A	1.2656 [1.0000]	126.6% { 116.1% }			
13C4_PFOS_IIS	(503.0 / 79.9) 951078	(7.74 , N/A) (N/A , -0.01 , N/A)	650.5	N/A	1.3985 [1.0000]	139.8% { 134.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1205611	(3.42 , N/A) (N/A , 0.06 , N/A)	5358.5	N/A	7.1085 [8.0000]	88.9% { 110.9% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 971873	(4.29 , N/A) (N/A , 0.03 , N/A)	3431.4	N/A	3.1073 [4.0000]	77.7% { 113.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 664571	(5.11 , N/A) (N/A , 0.03 , N/A)	2012.9	N/A	1.6791 [2.0000]	84.0% { 113.3% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 585955	(5.76 , N/A) (N/A , 0.01 , N/A)	2597.0	N/A	1.6950 [2.0000]	84.7% { 107.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 746860	(6.39 , N/A) (N/A , 0.00 , N/A)	3193.1	N/A	1.8355 [2.0000]	91.8% { 113.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 358305	(7.00 , N/A) (N/A , 0.00 , N/A)	3006.9	N/A	0.9970 [1.0000]	99.7% { 112.2% }			
13C6_PFDA_EIS	(519.0 / 474.0) 408075	(7.57 , N/A) (N/A , -0.01 , N/A)	2947.8	N/A	0.8851 [1.0000]	88.5% { 116.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (34)
Acquired: 2023/04/14 - 21:34

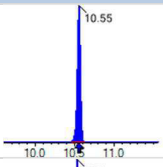
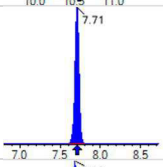
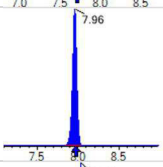
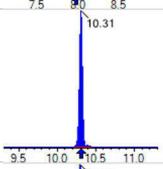
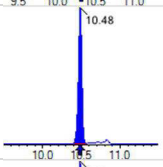
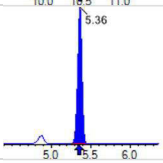
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 420513	(8.10 , N/A) (N/A , 0.00 , N/A)	7460.1	N/A	0.9826 [1.0000]	98.3% { 115.3% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 363835	(8.56 , N/A) (N/A , 0.00 , N/A)	2023.8	N/A	0.9929 [1.0000]	99.3% { 138.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 320098	(9.03 , N/A) (N/A , 0.00 , N/A)	1963.1	N/A	0.9264 [1.0000]	92.6% { 137.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1705535	(5.06 , N/A) (N/A , 0.03 , N/A)	1907.3	N/A	1.9166 [2.0000]	95.8% { 129.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 964103	(6.47 , N/A) (N/A , 0.00 , N/A)	1832.5	N/A	1.8453 [2.0000]	92.3% { 108.4% }			
13C8_PFOS_EIS	(507.0 / 80.0) 2048595	(7.74 , N/A) (N/A , -0.01 , N/A)	1039.1	N/A	1.7779 [2.0000]	88.9% { 123.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 491195	(4.88 , N/A) (N/A , 0.02 , N/A)	969.2	N/A	6.1284 [4.0000]	153.2% { 205.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 460110	(6.15 , N/A) (N/A , 0.00 , N/A)	1213.9	N/A	5.0297 [4.0000]	125.7% { 159.3% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 640951	(7.33 , N/A) (N/A , 0.00 , N/A)	1134.1	N/A	5.2924 [4.0000]	132.3% { 172.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2435269	(9.72 , N/A) (N/A , 0.00 , N/A)	4515.7	N/A	1.3019 [2.0000]	65.1% { 99.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 412204	(10.37 , N/A) (N/A , 0.00 , N/A)	1029.5	N/A	1.0327 [2.0000]	51.6% { 65.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (34)
Acquired: 2023/04/14 - 21:34

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 368813	(10.55 , N/A) (N/A , 0.01 , N/A)	1839.5	N/A	1.1199 [2.0000]	56.0% { 65.9% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 881804	(7.71 , N/A) (N/A , -0.01 , N/A)	2104.1	N/A	3.5707 [4.0000]	89.3% { 135.3% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 863040	(7.96 , N/A) (N/A , -0.01 , N/A)	16086094.6	N/A	4.2606 [4.0000]	106.5% { 155.7% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1566620	(10.31 , N/A) (N/A , 0.00 , N/A)	1575.5	N/A	11.8223 [20.0000]	59.1% { 72.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2284460	(10.48 , N/A) (N/A , 0.00 , N/A)	433.9	N/A	13.0434 [20.0000]	65.2% { 78.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1457174	(5.36 , N/A) (N/A , 0.01 , N/A)	1440.3	N/A	6.5263 [8.0000]	81.6% { 120.2% }			

FORM I
ANALYSIS DATA SHEET

AF-HDMW225303-WGN01LF-2304W1

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23D0043-02	File ID:	S2023-04-14A (36)
Sampled:	04/04/23 10:15	Prepared:	04/10/23 08:18	Analyzed:	04/14/23 22:00
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	521.29 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.77 U	1.5	0.77	0.20	
PFPEA	0.38 U	0.77	0.38	0.062	
PFHXA	0.088 J	0.38	0.19	0.053	IR1,
PFHPA	0.097 J	0.38	0.19	0.039	
PFOA	0.29 U	0.38	0.29	0.15	IR2,
PFNA	0.19 U	0.38	0.19	0.079	
PFDA	0.19 U	0.38	0.19	0.097	
PFUnA	0.29 U	0.38	0.29	0.15	
PFDOA	0.19 U	0.38	0.19	0.11	
PFTRDA	0.29 U	0.38	0.29	0.20	
PFTEDA	0.29 U	0.38	0.29	0.19	
PFBS	0.19 U	0.38	0.19	0.035	
PFPES	0.19 U	0.38	0.19	0.060	
PFHXS	0.037 J	0.38	0.19	0.030	
PFHPS	0.19 U	0.38	0.19	0.049	
PFOS	0.19 U	0.38	0.19	0.061	
PFNS	0.19 U	0.38	0.19	0.12	
PFDS	0.29 U	0.38	0.29	0.15	
PFDOS	0.19 U	0.38	0.19	0.12	
4:2FTS	0.77 U	1.5	0.77	0.28	
6:2FTS	0.77 U	1.5	0.77	0.30	
8:2FTS	0.77 U	1.5	0.77	0.079	
PFOSA	0.19 U	0.38	0.19	0.10	
NMeFOSA	0.77 U	1.5	0.77	0.45	
NEtFOSA	0.77 U	1.5	0.77	0.40	
NMeFOSAA	0.19 U	0.38	0.19	0.10	
NEtFOSAA	0.19 U	0.38	0.19	0.11	
NMeFOSE	1.2 U	1.5	1.2	0.97	
NEtFOSE	1.2 U	1.5	1.2	1.0	
HFPO-DA	0.38 U	0.77	0.38	0.17	

FORM I
ANALYSIS DATA SHEET

AF-HDMW225303-WGN01LF-2304W1

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23D0043-02	File ID:	S2023-04-14A (36)
Sampled:	04/04/23 10:15	Prepared:	04/10/23 08:18	Analyzed:	04/14/23 22:00
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	521.29 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014

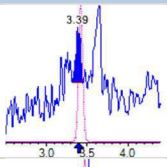
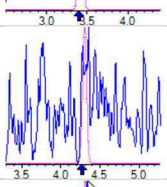
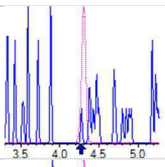
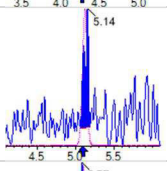
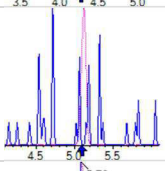
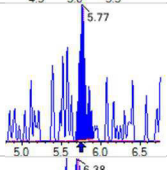
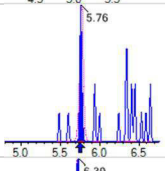
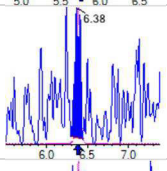
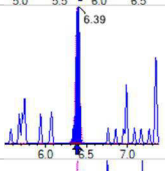
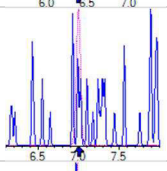
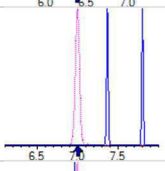
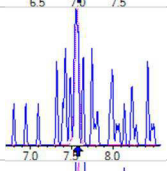
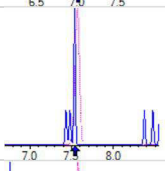
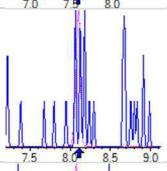
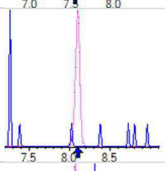
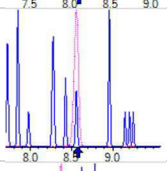
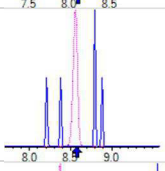
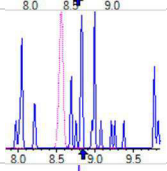
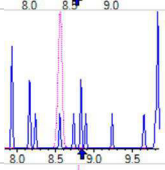
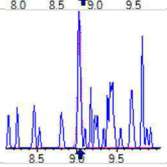
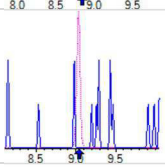
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.38 U	0.77	0.38	0.12	
PFEESA	0.38 U	0.77	0.38	0.10	
PFMPA	0.38 U	0.77	0.38	0.052	
PFMBA	0.38 U	0.77	0.38	0.087	
NFDHA	0.38 U	0.77	0.38	0.29	
9CL-PF3ONS	0.38 U	0.77	0.38	0.20	
11CL-PF3OUDS	0.38 U	0.77	0.38	0.20	
3:3FTCA	0.77 U	1.5	0.77	0.55	
5:3FTCA	0.77 U	1.5	0.77	0.43	
7:3FTCA	0.77 U	1.5	0.77	0.53	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (36)
Acquired: 2023/04/14 - 22:00

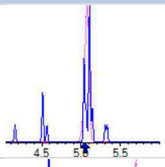
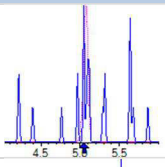
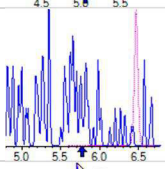
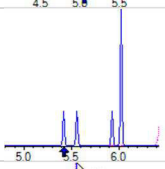
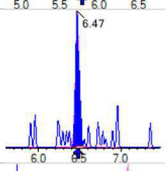
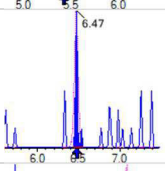
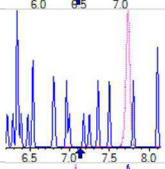
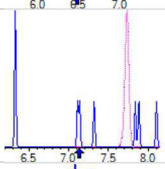
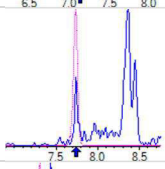
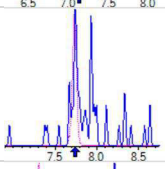
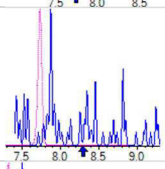
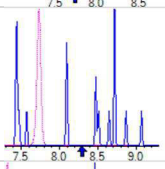
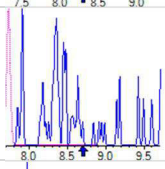
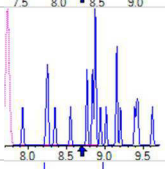
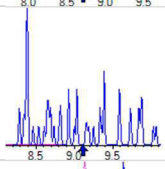
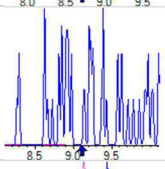
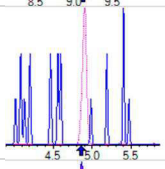
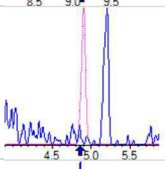
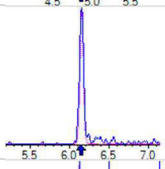
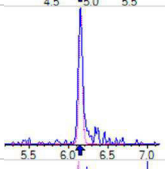
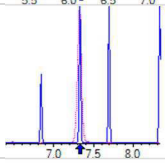
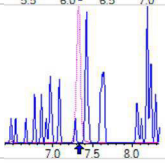
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 1595	(3.39 , 0.99) (-0.03 , N/A , 0.0)	7.0	N/A 0.0 0.0	0.0118	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) 6867 (313.0 / 119.0) N/A	(5.14 , 1.00) (0.02 , N/A , #Value!)	14.7 N/A	N/A 0.0 0.0	0.0229	N/A			IR1,
PFHpA	(363.0 / 319.0) 6227 (363.0 / 169.0) 1125	(5.77 , 1.00) (-0.01 , N/A , 0.3)	24.4 90330.4	0.1806 59.2 58.0	0.0253	N/A			
PFOA	(413.0 / 369.0) 5900 (413.0 / 169.0) 3807	(6.38 , 1.00) (0.00 , N/A , -0.6)	15.3 14972.3	0.6452 206.1 206.0	0.0195	N/A			IR2,
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (36)
Acquired: 2023/04/14 - 22:00

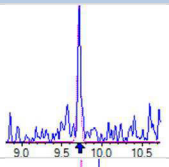
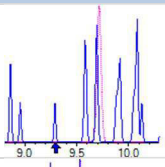
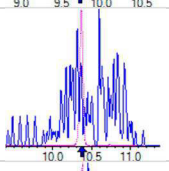
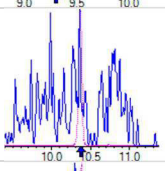
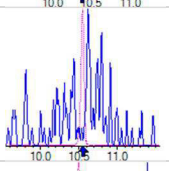
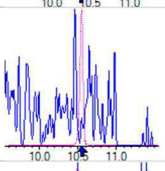
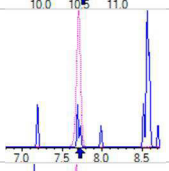
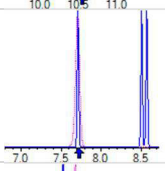
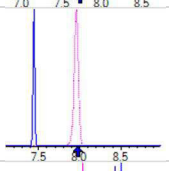
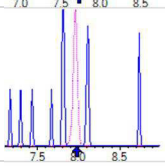
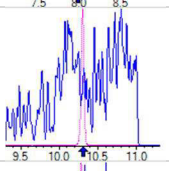
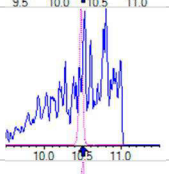
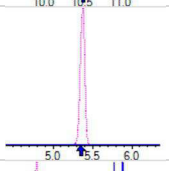
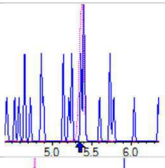
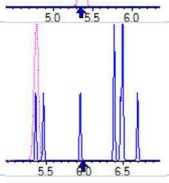
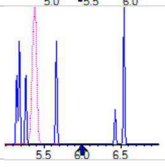
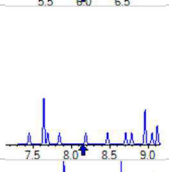
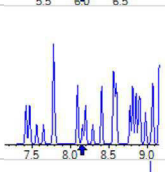
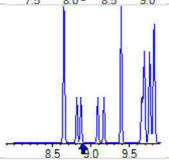
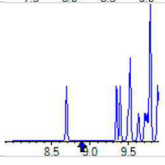
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) 6901 (399.0 / 99.0) 1667	(6.47 , 1.00) (0.00 , N/A , -0.2)	59.2 135.9	0.2416 69.8 70.1	0.0097	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) N/A (499.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (36)
Acquired: 2023/04/14 - 22:00

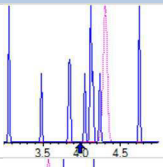
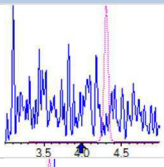
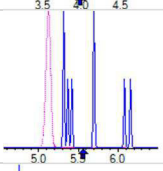
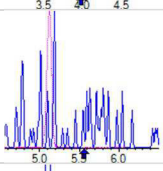
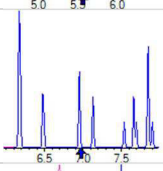
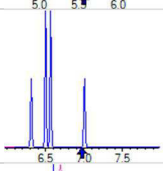
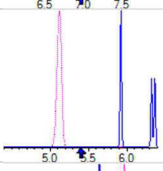
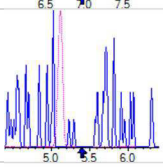
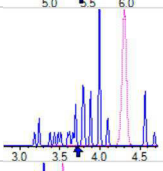
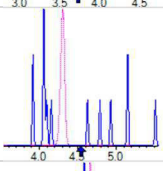
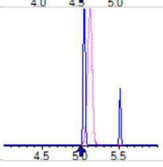
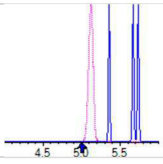
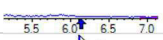
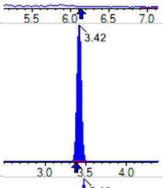
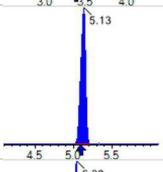
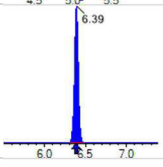
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (36)
Acquired: 2023/04/14 - 22:00

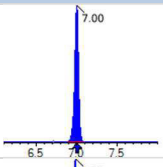
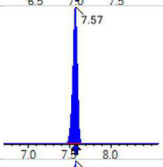
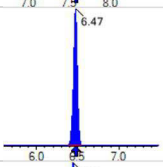
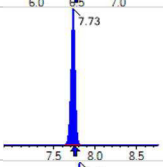
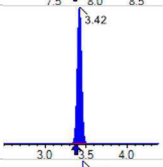
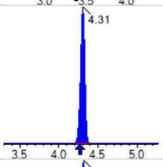
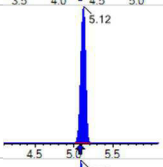
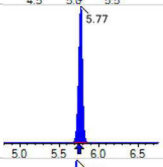
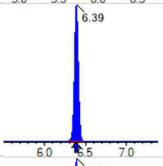
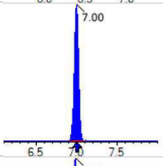
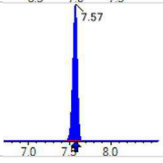
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 150089	(3.42 , N/A) (N/A , 0.05 , N/A)	1715.7	N/A	1.2312 [1.0000]	123.1% { 119.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 245263	(5.13 , N/A) (N/A , 0.04 , N/A)	1254.4	N/A	1.2092 [1.0000]	120.9% { 122.8% }			
13C4_PFOA_IIS	(417.0 / 372.0) 363487	(6.39 , N/A) (N/A , 0.01 , N/A)	32239.7	N/A	1.1438 [1.0000]	114.4% { 109.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (36)
Acquired: 2023/04/14 - 22:00

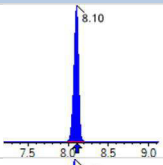
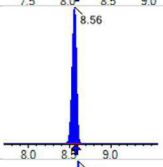
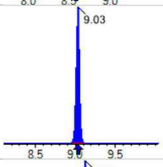
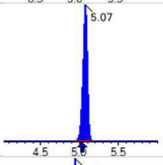
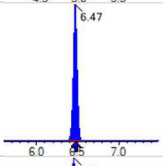
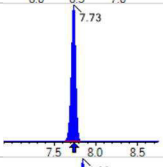
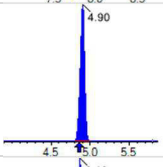
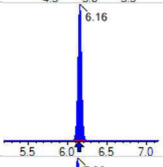
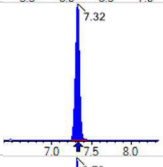
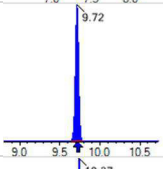
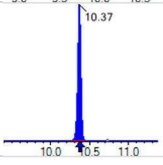
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 346387	(7.00 , N/A) (N/A , 0.00 , N/A)	5891.1	N/A	1.1413 [1.0000]	114.1% { 108.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 341282	(7.57 , N/A) (N/A , -0.01 , N/A)	5258025.3	N/A	1.0518 [1.0000]	105.2% { 103.9% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 505816	(6.47 , N/A) (N/A , 0.01 , N/A)	2012.8	N/A	1.1294 [1.0000]	112.9% { 103.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 798348	(7.73 , N/A) (N/A , -0.01 , N/A)	1423.9	N/A	1.1739 [1.0000]	117.4% { 112.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1235345	(3.42 , N/A) (N/A , 0.05 , N/A)	4604.6	N/A	7.7630 [8.0000]	97.0% { 113.6% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 934711	(4.31 , N/A) (N/A , 0.04 , N/A)	2754.5	N/A	3.4024 [4.0000]	85.1% { 108.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 621013	(5.12 , N/A) (N/A , 0.04 , N/A)	2261.6	N/A	1.7864 [2.0000]	89.3% { 105.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 570021	(5.77 , N/A) (N/A , 0.02 , N/A)	2132.1	N/A	1.8772 [2.0000]	93.9% { 104.5% }			
13C8_PFOA_EIS	(421.0 / 376.0) 643307	(6.39 , N/A) (N/A , 0.01 , N/A)	6027.8	N/A	1.7931 [2.0000]	89.7% { 97.4% }			
13C9_PFNA_EIS	(472.0 / 427.0) 329688	(7.00 , N/A) (N/A , 0.00 , N/A)	9030.2	N/A	1.0131 [1.0000]	101.3% { 103.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 370897	(7.57 , N/A) (N/A , -0.01 , N/A)	1659.2	N/A	0.9687 [1.0000]	96.9% { 105.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (36)
Acquired: 2023/04/14 - 22:00

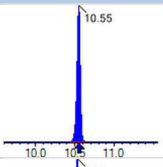
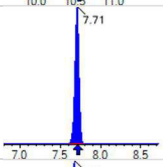
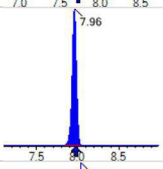
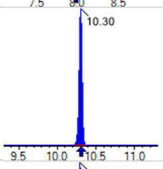
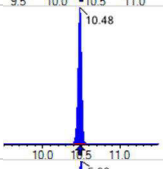
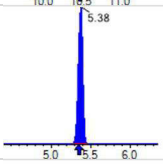
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 368621	(8.10 , N/A) (N/A , 0.00 , N/A)	5014.4	N/A	1.0372 [1.0000]	103.7% { 101.1% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 298100	(8.56 , N/A) (N/A , -0.01 , N/A)	1691.4	N/A	0.9796 [1.0000]	98.0% { 113.2% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 262926	(9.03 , N/A) (N/A , 0.00 , N/A)	1293.9	N/A	0.9163 [1.0000]	91.6% { 112.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1488162	(5.07 , N/A) (N/A , 0.04 , N/A)	2671.6	N/A	1.8740 [2.0000]	93.7% { 112.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 903675	(6.47 , N/A) (N/A , 0.01 , N/A)	2545.1	N/A	1.9382 [2.0000]	96.9% { 101.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1824435	(7.73 , N/A) (N/A , -0.01 , N/A)	1936.2	N/A	1.8863 [2.0000]	94.3% { 109.8% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 315127	(4.90 , N/A) (N/A , 0.05 , N/A)	1034.7	N/A	4.4059 [4.0000]	110.1% { 131.8% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 414226	(6.16 , N/A) (N/A , 0.01 , N/A)	1667.6	N/A	5.0742 [4.0000]	126.9% { 143.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 413491	(7.32 , N/A) (N/A , -0.01 , N/A)	1933.4	N/A	3.8260 [4.0000]	95.7% { 111.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2619583	(9.72 , N/A) (N/A , 0.00 , N/A)	3661.9	N/A	1.6684 [2.0000]	83.4% { 107.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 325569	(10.37 , N/A) (N/A , 0.00 , N/A)	1935.2	N/A	0.9717 [2.0000]	48.6% { 51.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (36)
Acquired: 2023/04/14 - 22:00

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 282328	(10.55 , N/A) (N/A , 0.00 , N/A)	1622.0	N/A	1.0213 [2.0000]	51.1% { 50.4% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 725241	(7.71 , N/A) (N/A , -0.01 , N/A)	2218.1	N/A	3.4985 [4.0000]	87.5% { 111.3% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 578786	(7.96 , N/A) (N/A , -0.01 , N/A)	6932.0	N/A	3.4039 [4.0000]	85.1% { 104.4% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1678875	(10.30 , N/A) (N/A , 0.00 , N/A)	1507.7	N/A	15.0932 [20.0000]	75.5% { 77.2% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2435034	(10.48 , N/A) (N/A , 0.00 , N/A)	1532.4	N/A	16.5629 [20.0000]	82.8% { 83.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1333031	(5.38 , N/A) (N/A , 0.03 , N/A)	3032.4	N/A	6.7971 [8.0000]	85.0% { 109.9% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW10-WGN01LF-2304W1

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23D0043-03	File ID:	S2023-04-14A (38)
Sampled:	04/04/23 13:00	Prepared:	04/10/23 08:18	Analyzed:	04/14/23 22:26
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	523.27 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.76 U	1.5	0.76	0.20	
PFPEA	0.38 U	0.76	0.38	0.062	
PFHXA	0.19 U	0.38	0.19	0.052	
PFHPA	0.19 U	0.38	0.19	0.039	
PFOA	0.29 U	0.38	0.29	0.15	
PFNA	0.19 U	0.38	0.19	0.078	
PFDA	0.19 U	0.38	0.19	0.097	
PFUnA	0.29 U	0.38	0.29	0.15	
PFDOA	0.19 U	0.38	0.19	0.11	
PFTRDA	0.29 U	0.38	0.29	0.19	
PFTEDA	0.29 U	0.38	0.29	0.19	
PFBS	0.19 U	0.38	0.19	0.035	
PFPES	0.19 U	0.38	0.19	0.060	
PFHXS	0.19 U	0.38	0.19	0.030	
PFHPS	0.19 U	0.38	0.19	0.049	
PFOS	0.19 U	0.38	0.19	0.061	
PFNS	0.19 U	0.38	0.19	0.12	
PFDS	0.29 U	0.38	0.29	0.14	
PFDOS	0.19 U	0.38	0.19	0.12	
4:2FTS	0.76 U	1.5	0.76	0.28	
6:2FTS	0.76 U	1.5	0.76	0.30	
8:2FTS	0.76 U	1.5	0.76	0.078	
PFOSA	0.19 U	0.38	0.19	0.099	
NMeFOSA	0.76 U	1.5	0.76	0.45	
NEtFOSA	0.76 U	1.5	0.76	0.39	
NMeFOSAA	0.19 U	0.38	0.19	0.10	
NEtFOSAA	0.19 U	0.38	0.19	0.11	
NMeFOSE	1.1 U	1.5	1.1	0.97	
NEtFOSE	1.1 U	1.5	1.1	1.0	
HFPO-DA	0.38 U	0.76	0.38	0.17	

FORM I
ANALYSIS DATA SHEET

AF-RHMW10-WGN01LF-2304W1

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23D0043-03	File ID:	S2023-04-14A (38)
Sampled:	04/04/23 13:00	Prepared:	04/10/23 08:18	Analyzed:	04/14/23 22:26
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	523.27 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014

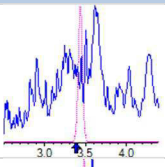
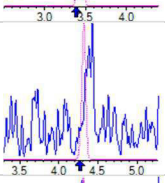
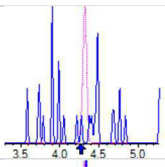
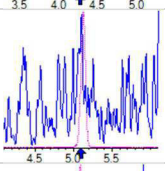
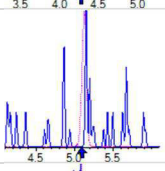
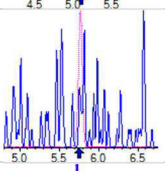
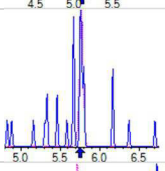
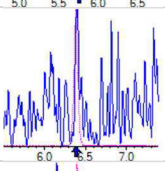
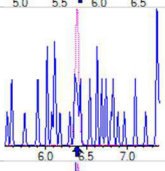
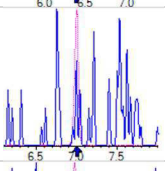
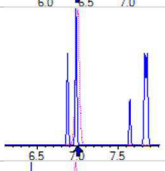
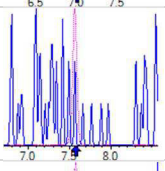
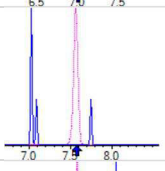
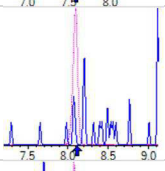
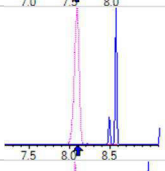
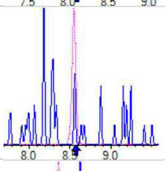
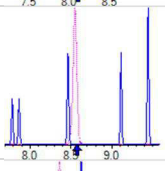
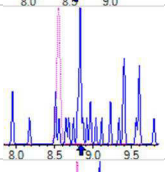
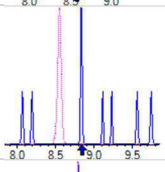
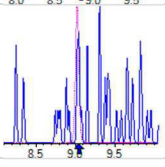
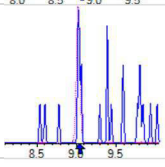
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.38 U	0.76	0.38	0.12	
PFEESA	0.38 U	0.76	0.38	0.10	
PFMPA	0.38 U	0.76	0.38	0.052	
PFMBA	0.38 U	0.76	0.38	0.087	
NFDHA	0.38 U	0.76	0.38	0.29	
9CL-PF3ONS	0.38 U	0.76	0.38	0.20	
11CL-PF3OUDS	0.38 U	0.76	0.38	0.20	
3:3FTCA	0.76 U	1.5	0.76	0.55	
5:3FTCA	0.76 U	1.5	0.76	0.42	
7:3FTCA	0.76 U	1.5	0.76	0.53	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (38)
Acquired: 2023/04/14 - 22:26

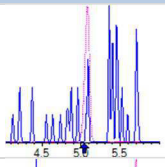
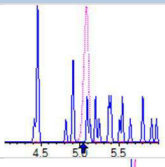
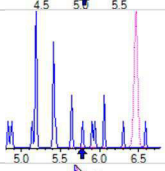
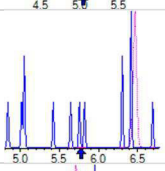
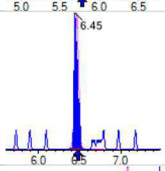
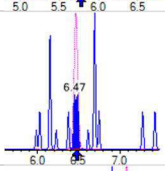
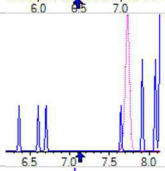
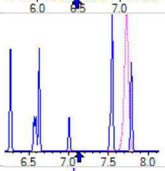
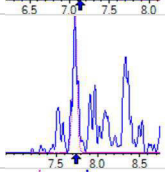
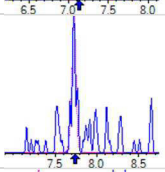
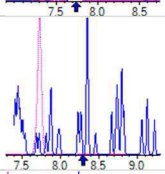
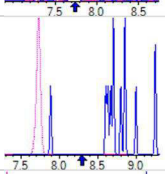
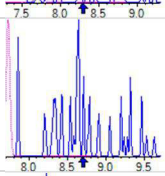
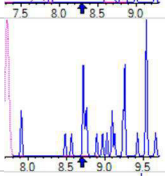
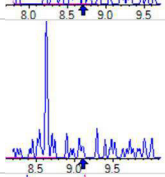
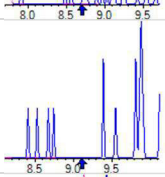
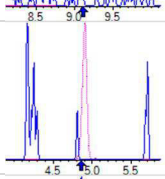
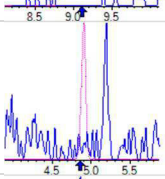
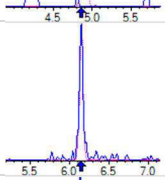
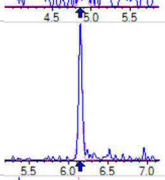
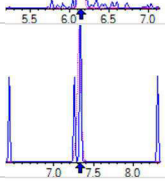
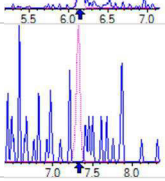
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (38)
Acquired: 2023/04/14 - 22:26

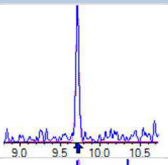
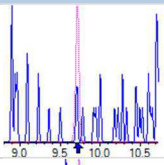
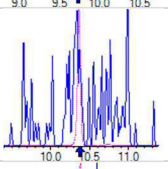
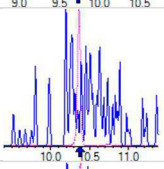
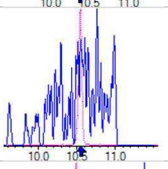
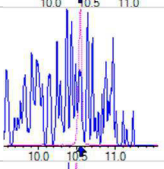
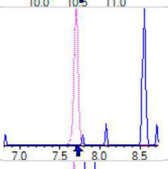
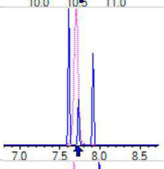
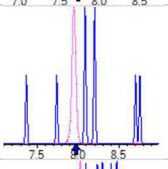
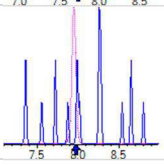
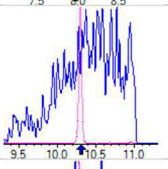
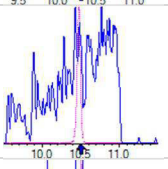
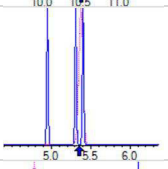
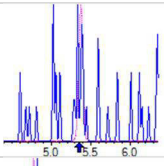
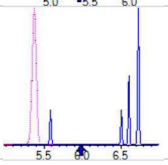
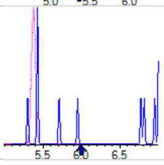
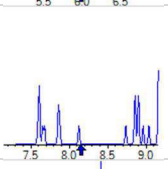
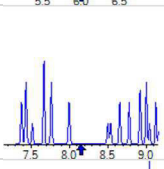
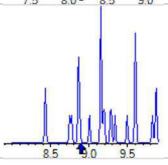
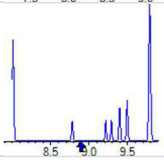
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) 5516 (399.0 / 99.0) 1338	(6.45 , 1.00) (-0.02 , N/A , -1.0)	358.3 71.1	0.2425 70.0 70.4	0.0073	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) N/A (499.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (38)
Acquired: 2023/04/14 - 22:26

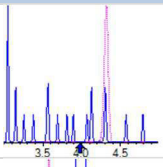
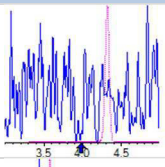
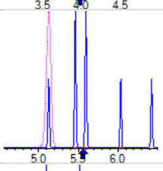
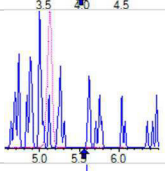
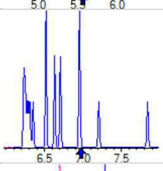
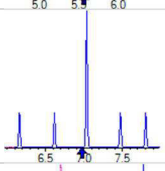
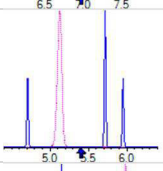
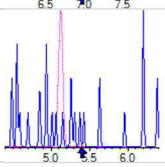
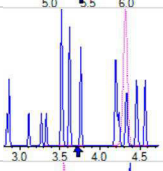
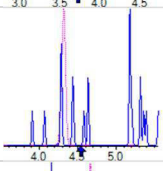
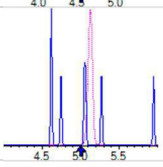
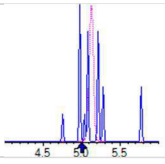
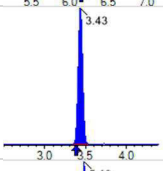
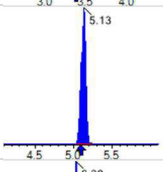
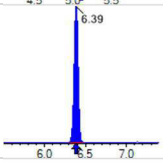
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (38)
Acquired: 2023/04/14 - 22:26

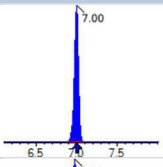
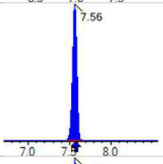
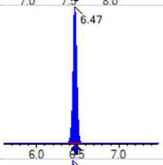
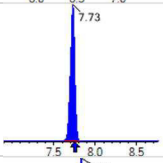
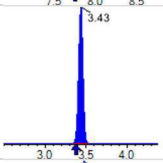
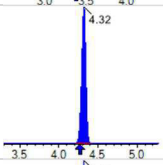
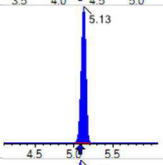
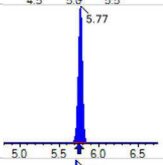
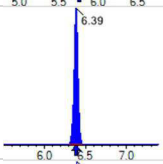
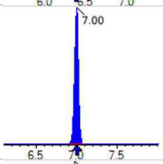
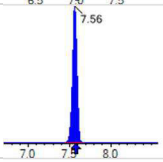
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 156026	(3.43 , N/A) (N/A , 0.06 , N/A)	1643.7	N/A	1.2799 [1.0000]	128.0% { 123.7% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 241014	(5.13 , N/A) (N/A , 0.05 , N/A)	6543.8	N/A	1.1883 [1.0000]	118.8% { 120.7% }			
13C4_PFOA_IIS	(417.0 / 372.0) 373347	(6.39 , N/A) (N/A , 0.00 , N/A)	6613.8	N/A	1.1748 [1.0000]	117.5% { 112.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (38)
Acquired: 2023/04/14 - 22:26

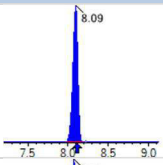
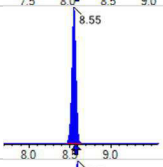
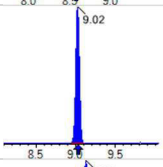
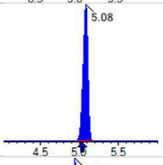
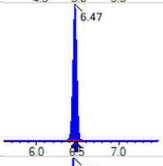
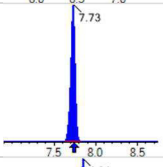
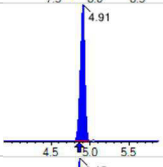
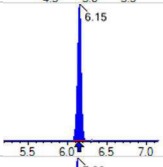
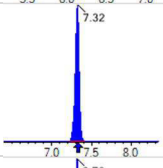
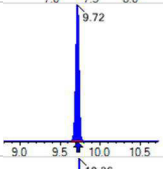
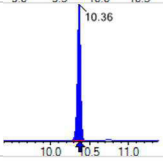
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 352315	(7.00 , N/A) (N/A , 0.00 , N/A)	4432.3	N/A	1.1608 [1.0000]	116.1% { 109.8% }			
13C2_PFDA_IIS	(515.0 / 470.1) 381618	(7.56 , N/A) (N/A , -0.01 , N/A)	31703.8	N/A	1.1761 [1.0000]	117.6% { 116.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 602633	(6.47 , N/A) (N/A , 0.00 , N/A)	74217492.8	N/A	1.3456 [1.0000]	134.6% { 123.5% }			
13C4_PFOS_IIS	(503.0 / 79.9) 821043	(7.73 , N/A) (N/A , -0.02 , N/A)	1591.4	N/A	1.2073 [1.0000]	120.7% { 115.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1241787	(3.43 , N/A) (N/A , 0.07 , N/A)	6771.4	N/A	7.5066 [8.0000]	93.8% { 114.2% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 980778	(4.32 , N/A) (N/A , 0.05 , N/A)	4004.6	N/A	3.6330 [4.0000]	90.8% { 114.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 611885	(5.13 , N/A) (N/A , 0.04 , N/A)	2068.4	N/A	1.7911 [2.0000]	89.6% { 104.3% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 536413	(5.77 , N/A) (N/A , 0.02 , N/A)	2520.7	N/A	1.7977 [2.0000]	89.9% { 98.3% }			
13C8_PFOA_EIS	(421.0 / 376.0) 660245	(6.39 , N/A) (N/A , 0.00 , N/A)	3167.5	N/A	1.7917 [2.0000]	89.6% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 307643	(7.00 , N/A) (N/A , 0.00 , N/A)	384442.3	N/A	0.9294 [1.0000]	92.9% { 96.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 362851	(7.56 , N/A) (N/A , -0.01 , N/A)	3832.7	N/A	0.8476 [1.0000]	84.8% { 103.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (38)
Acquired: 2023/04/14 - 22:26

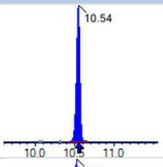
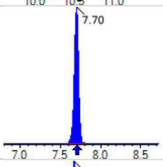
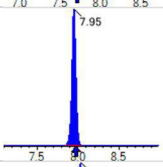
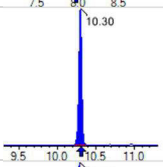
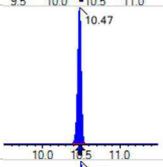
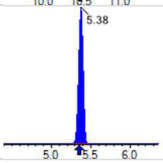
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 319856	(8.09 , N/A) (N/A , -0.01 , N/A)	1748.1	N/A	0.8049 [1.0000]	80.5% { 87.7% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 288578	(8.55 , N/A) (N/A , -0.02 , N/A)	5891.8	N/A	0.8481 [1.0000]	84.8% { 109.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 250767	(9.02 , N/A) (N/A , -0.01 , N/A)	1966.6	N/A	0.7815 [1.0000]	78.2% { 107.6% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1439949	(5.08 , N/A) (N/A , 0.05 , N/A)	1984.8	N/A	1.5220 [2.0000]	76.1% { 109.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 959428	(6.47 , N/A) (N/A , 0.00 , N/A)	2531.4	N/A	1.7272 [2.0000]	86.4% { 107.9% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1810108	(7.73 , N/A) (N/A , -0.01 , N/A)	2769.5	N/A	1.8198 [2.0000]	91.0% { 109.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 315408	(4.91 , N/A) (N/A , 0.05 , N/A)	1250.4	N/A	3.7013 [4.0000]	92.5% { 131.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 410719	(6.15 , N/A) (N/A , 0.01 , N/A)	4191.6	N/A	4.2230 [4.0000]	105.6% { 142.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 402725	(7.32 , N/A) (N/A , -0.01 , N/A)	1328.7	N/A	3.1277 [4.0000]	78.2% { 108.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1976283	(9.72 , N/A) (N/A , 0.00 , N/A)	3419.9	N/A	1.2239 [2.0000]	61.2% { 80.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 245555	(10.36 , N/A) (N/A , -0.01 , N/A)	1308.4	N/A	0.7126 [2.0000]	35.6% { 39.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (38)
Acquired: 2023/04/14 - 22:26

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 163535	(10.54 , N/A) (N/A , 0.00 , N/A)	1312.8	N/A	0.5752 [2.0000]	28.8% { 29.2% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 683603	(7.70 , N/A) (N/A , -0.01 , N/A)	2698.7	N/A	3.2065 [4.0000]	80.2% { 104.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 578636	(7.95 , N/A) (N/A , -0.02 , N/A)	7157.8	N/A	3.3090 [4.0000]	82.7% { 104.4% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 893651	(10.30 , N/A) (N/A , 0.00 , N/A)	1076.0	N/A	7.8119 [20.0000]	39.1% { 41.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 1329780	(10.47 , N/A) (N/A , 0.00 , N/A)	1124.3	N/A	8.7950 [20.0000]	44.0% { 45.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1361222	(5.38 , N/A) (N/A , 0.03 , N/A)	3570.4	N/A	7.0632 [8.0000]	88.3% { 112.2% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW10-WGFD01LF-2304W1

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23D0043-04	File ID:	S2023-04-14A (40)
Sampled:	04/04/23 13:00	Prepared:	04/10/23 08:18	Analyzed:	04/14/23 22:52
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	544.2 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.74 U	1.5	0.74	0.19	
PFPEA	0.37 U	0.74	0.37	0.060	
PFHXA	0.18 U	0.37	0.18	0.050	
PFHPA	0.18 U	0.37	0.18	0.038	
PFOA	0.28 U	0.37	0.28	0.14	
PFNA	0.18 U	0.37	0.18	0.075	
PFDA	0.18 U	0.37	0.18	0.093	
PFUnA	0.28 U	0.37	0.28	0.15	
PFDOA	0.18 U	0.37	0.18	0.10	
PFTRDA	0.28 U	0.37	0.28	0.19	
PFTEDA	0.28 U	0.37	0.28	0.18	
PFBS	0.18 U	0.37	0.18	0.034	
PFPES	0.18 U	0.37	0.18	0.058	
PFHXS	0.18 U	0.37	0.18	0.029	
PFHPS	0.18 U	0.37	0.18	0.047	
PFOS	0.18 U	0.37	0.18	0.058	
PFNS	0.18 U	0.37	0.18	0.11	
PFDS	0.28 U	0.37	0.28	0.14	
PFDOS	0.18 U	0.37	0.18	0.11	
4:2FTS	0.74 U	1.5	0.74	0.27	
6:2FTS	0.74 U	1.5	0.74	0.29	
8:2FTS	0.74 U	1.5	0.74	0.075	
PFOSA	0.18 U	0.37	0.18	0.096	
NMeFOSA	0.74 U	1.5	0.74	0.43	
NEtFOSA	0.74 U	1.5	0.74	0.38	
NMeFOSAA	0.18 U	0.37	0.18	0.097	
NEtFOSAA	0.18 U	0.37	0.18	0.11	
NMeFOSE	1.1 U	1.5	1.1	0.93	
NEtFOSE	1.1 U	1.5	1.1	0.96	
HFPO-DA	0.37 U	0.74	0.37	0.16	

FORM I
ANALYSIS DATA SHEET

AF-RHMW10-WGFD01LF-2304W1

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23D0043-04	File ID:	S2023-04-14A (40)
Sampled:	04/04/23 13:00	Prepared:	04/10/23 08:18	Analyzed:	04/14/23 22:52
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	544.2 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014

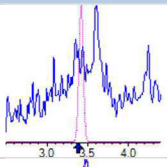
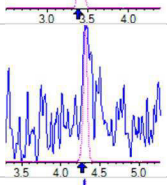
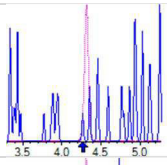
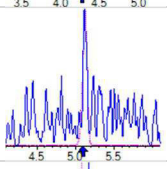
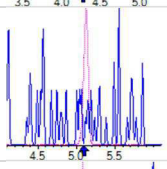
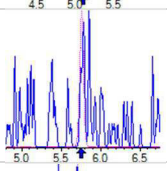
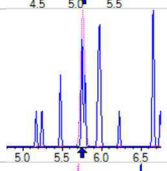
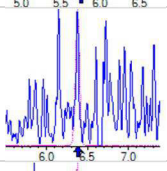
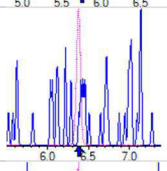
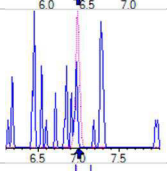
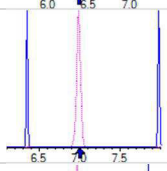
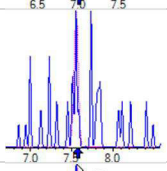
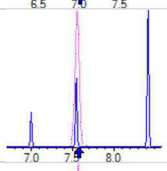
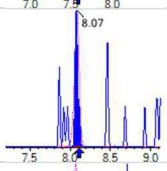
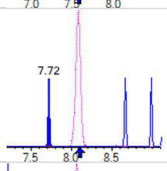
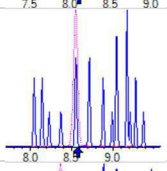
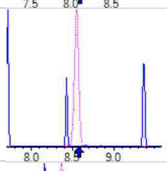
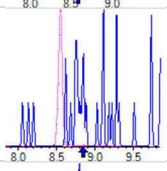
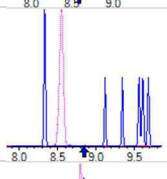
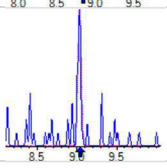
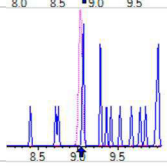
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.37 U	0.74	0.37	0.11	
PFEESA	0.37 U	0.74	0.37	0.10	
PFMPA	0.37 U	0.74	0.37	0.050	
PFMBA	0.37 U	0.74	0.37	0.083	
NFDHA	0.37 U	0.74	0.37	0.28	
9CL-PF3ONS	0.37 U	0.74	0.37	0.19	
11CL-PF3OUDS	0.37 U	0.74	0.37	0.19	
3:3FTCA	0.74 U	1.5	0.74	0.53	
5:3FTCA	0.74 U	1.5	0.74	0.41	
7:3FTCA	0.74 U	1.5	0.74	0.51	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-04
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (40)
Acquired: 2023/04/14 - 22:52

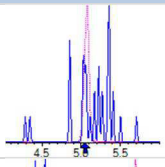
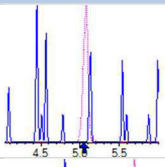
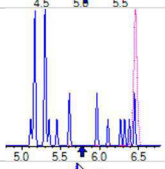
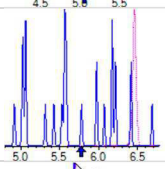
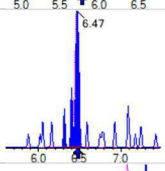
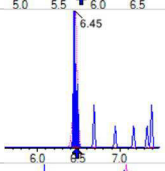
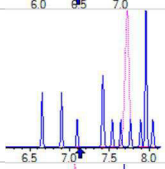
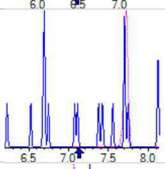
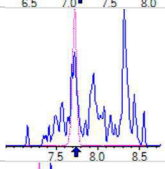
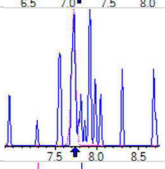
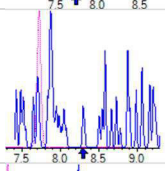
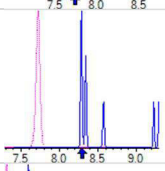
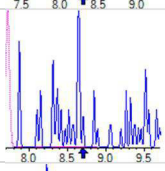
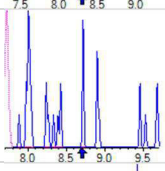
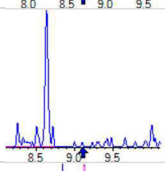
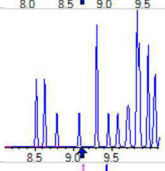
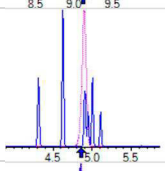
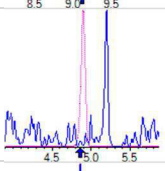
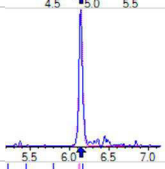
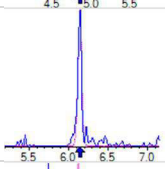
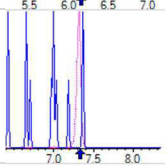
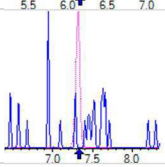
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) 1169 (563.0 / 169.0) 178	(8.07 , 1.00) (-0.01 , N/A , 21.3)	37.7 4391.1	0.1522 128.8 133.7	0.0037	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-04
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (40)
Acquired: 2023/04/14 - 22:52

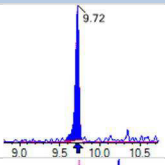
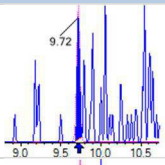
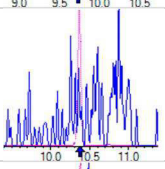
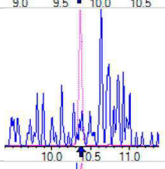
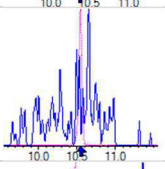
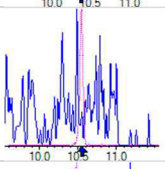
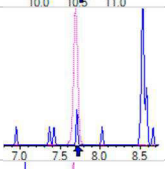
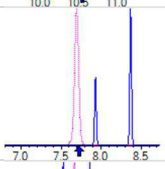
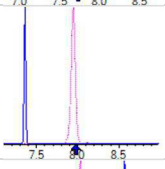
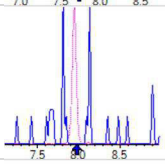
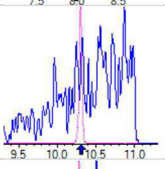
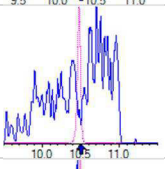
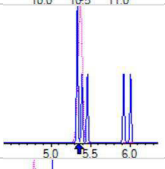
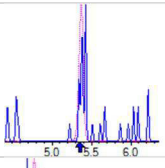
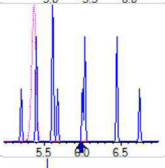
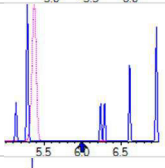
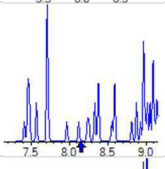
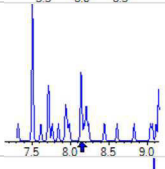
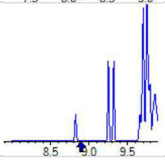
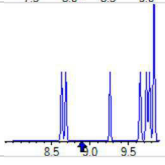
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) 5403 (399.0 / 99.0) 1841	(6.47 , 1.00) (0.01 , N/A , 1.5)	12003.8 181.0	0.3407 98.4 98.8	0.0072	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) N/A (499.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-04
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (40)
Acquired: 2023/04/14 - 22:52

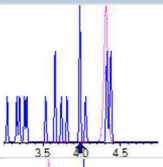
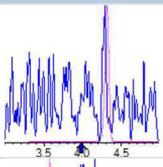
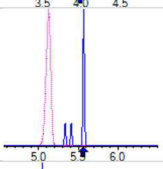
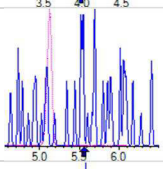
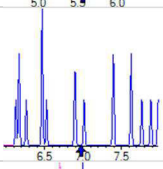
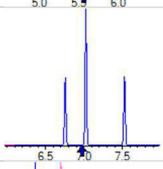
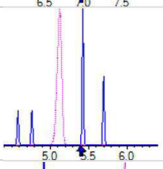
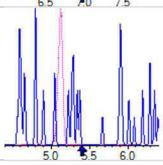
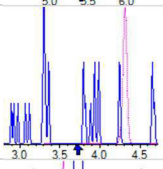
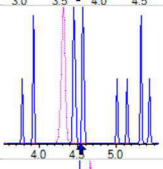
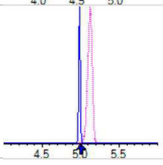
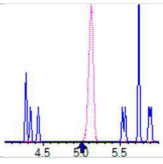
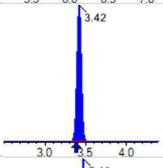
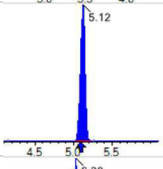
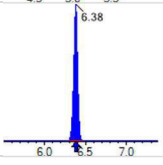
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 19201 (498.0 / 478.0) 467	(9.72 , 1.00) (0.00 , N/A , 0.0)	109.3 10.4	0.0243 98.2 109.5	0.0185	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-04
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (40)
Acquired: 2023/04/14 - 22:52

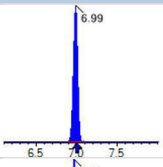
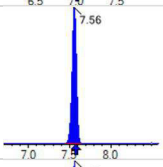
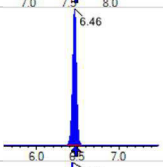
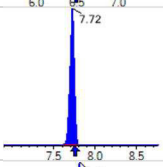
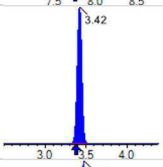
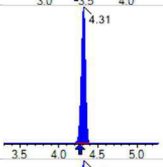
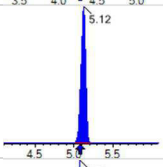
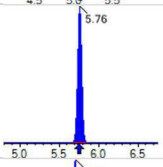
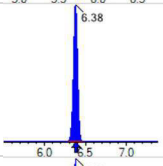
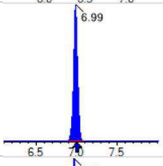
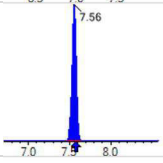
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 164811	(3.42 , N/A) (N/A , 0.05 , N/A)	1784.0	N/A	1.3519 [1.0000]	135.2% { 130.6% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 247211	(5.12 , N/A) (N/A , 0.03 , N/A)	18285.7	N/A	1.2189 [1.0000]	121.9% { 123.8% }			
13C4_PFOA_IIS	(417.0 / 372.0) 373426	(6.38 , N/A) (N/A , 0.00 , N/A)	11694.3	N/A	1.1751 [1.0000]	117.5% { 112.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-04
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (40)
Acquired: 2023/04/14 - 22:52

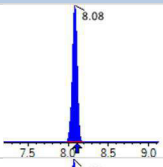
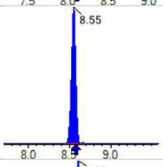
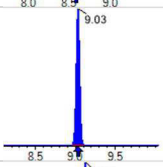
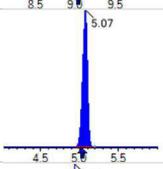
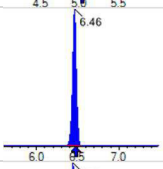
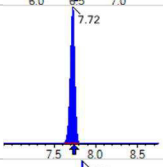
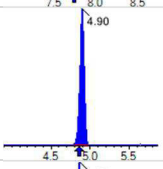
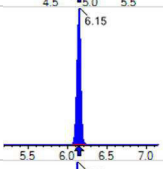
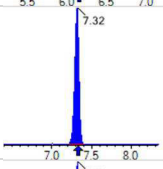
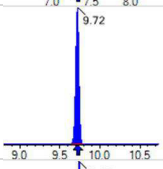
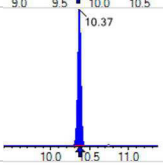
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 390958	(6.99 , N/A) (N/A , -0.01 , N/A)	9477.2	N/A	1.2882 [1.0000]	128.8% { 121.8% }			
13C2_PFDA_IIS	(515.0 / 470.1) 388324	(7.56 , N/A) (N/A , -0.02 , N/A)	1918.5	N/A	1.1968 [1.0000]	119.7% { 118.2% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 530209	(6.46 , N/A) (N/A , 0.00 , N/A)	2758.4	N/A	1.1839 [1.0000]	118.4% { 108.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 869030	(7.72 , N/A) (N/A , -0.02 , N/A)	1603.5	N/A	1.2779 [1.0000]	127.8% { 122.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1285821	(3.42 , N/A) (N/A , 0.05 , N/A)	6637.8	N/A	7.3584 [8.0000]	92.0% { 118.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1060045	(4.31 , N/A) (N/A , 0.05 , N/A)	3186.4	N/A	3.8282 [4.0000]	95.7% { 123.3% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 663894	(5.12 , N/A) (N/A , 0.04 , N/A)	3175.4	N/A	1.8947 [2.0000]	94.7% { 113.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 591355	(5.76 , N/A) (N/A , 0.01 , N/A)	3251.2	N/A	1.9321 [2.0000]	96.6% { 108.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 667009	(6.38 , N/A) (N/A , 0.00 , N/A)	4485.1	N/A	1.8097 [2.0000]	90.5% { 101.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 332923	(6.99 , N/A) (N/A , -0.01 , N/A)	177648.2	N/A	0.9064 [1.0000]	90.6% { 104.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 388859	(7.56 , N/A) (N/A , -0.02 , N/A)	2585.7	N/A	0.8926 [1.0000]	89.3% { 110.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-04
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (40)
Acquired: 2023/04/14 - 22:52

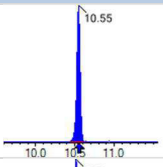
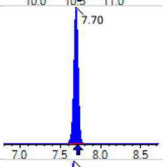
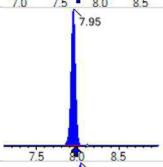
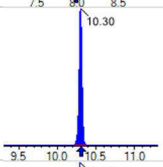
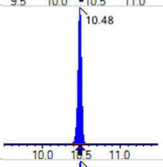
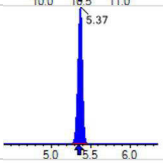
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 362587	(8.08 , N/A) (N/A , -0.02 , N/A)	2050.8	N/A	0.8966 [1.0000]	89.7% { 99.4% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 301614	(8.55 , N/A) (N/A , -0.01 , N/A)	2669.3	N/A	0.8711 [1.0000]	87.1% { 114.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 232441	(9.03 , N/A) (N/A , 0.00 , N/A)	1864.4	N/A	0.7119 [1.0000]	71.2% { 99.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1559482	(5.07 , N/A) (N/A , 0.04 , N/A)	2299.7	N/A	1.8734 [2.0000]	93.7% { 118.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 955044	(6.46 , N/A) (N/A , 0.00 , N/A)	2102.3	N/A	1.9542 [2.0000]	97.7% { 107.4% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1797071	(7.72 , N/A) (N/A , -0.02 , N/A)	2807.7	N/A	1.7069 [2.0000]	85.3% { 108.2% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 337641	(4.90 , N/A) (N/A , 0.04 , N/A)	991.0	N/A	4.5035 [4.0000]	112.6% { 141.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 396372	(6.15 , N/A) (N/A , 0.00 , N/A)	1987.0	N/A	4.6322 [4.0000]	115.8% { 137.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 397027	(7.32 , N/A) (N/A , -0.01 , N/A)	1174.8	N/A	3.5047 [4.0000]	87.6% { 106.7% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2369778	(9.72 , N/A) (N/A , 0.00 , N/A)	3821.8	N/A	1.3865 [2.0000]	69.3% { 96.8% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 294501	(10.37 , N/A) (N/A , 0.00 , N/A)	1460.4	N/A	0.8075 [2.0000]	40.4% { 47.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23D0043-04
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (40)
Acquired: 2023/04/14 - 22:52

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 188525	(10.55 , N/A) (N/A , 0.00 , N/A)	1395.4	N/A	0.6265 [2.0000]	31.3% { 33.7% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 702812	(7.70 , N/A) (N/A , -0.02 , N/A)	2057.9	N/A	3.1146 [4.0000]	77.9% { 107.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 553383	(7.95 , N/A) (N/A , -0.02 , N/A)	15337.9	N/A	2.9898 [4.0000]	74.7% { 99.8% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1128627	(10.30 , N/A) (N/A , 0.00 , N/A)	1336.8	N/A	9.3212 [20.0000]	46.6% { 51.9% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 1842014	(10.48 , N/A) (N/A , 0.00 , N/A)	1297.2	N/A	11.5102 [20.0000]	57.6% { 62.9% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1374992	(5.37 , N/A) (N/A , 0.02 , N/A)	2793.5	N/A	6.9558 [8.0000]	86.9% { 113.4% }			

QUALITY CONTROL

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23D0043
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW225401-WGN01B-2304W1 (23D0043-01) ng/L	Lab File ID: S2023-04-14A (34)			Analyzed: 04/14/23 21:34
13C4-PFBA	29.4	88.9	10 - 130	
13C5-PFPEA	14.7	77.7	35 - 150	
13C5-PFHXA	7.36	84.0	55 - 150	
13C4-PFHPA	7.36	84.7	55 - 150	
13C8-PFOA	7.36	91.8	60 - 140	
13C9-PFNA	3.68	99.7	55 - 140	
13C6-PFDA	3.68	88.5	50 - 140	
13C7-PFUnA	3.68	98.3	30 - 140	
13C2-PFDOA	3.68	99.3	10 - 150	
13C2-PFTEDA	3.68	92.6	10 - 130	
13C3-PFBS	7.36	95.8	55 - 150	
13C3-PFHXS	7.36	92.3	55 - 150	
13C8-PFOS	7.36	88.9	45 - 140	
13C2-4:2FTS	14.7	153	60 - 200	
13C2-6:2FTS	14.7	126	60 - 200	
13C2-8:2FTS	14.7	132	50 - 200	
13C8-PFOSA	7.36	65.1	30 - 130	
D3-NMEFOSA	7.36	51.6	15 - 130	
D5-NETFOSA	7.36	56.0	10 - 130	
D3-NMEFOSAA	14.7	89.3	45 - 200	
D5-NETFOSAA	14.7	107	10 - 200	
D7-NMEFOSE	73.6	59.1	10 - 150	
D9-NETFOSE	73.6	65.2	10 - 150	
13C3-HFPO-DA	29.4	81.6	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23D0043
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-HDMW225303-WGN01LF-2304W1 (23D0043-02) ng/L Lab File ID: S2023-04-14A (36)				Analyzed: 04/14/23 22:00
13C4-PFBA	30.7	97.0	10 - 130	
13C5-PFPEA	15.3	85.1	35 - 150	
13C5-PFHXA	7.67	89.3	55 - 150	
13C4-PFHPA	7.67	93.9	55 - 150	
13C8-PFOA	7.67	89.7	60 - 140	
13C9-PFNA	3.84	101	55 - 140	
13C6-PFDA	3.84	96.9	50 - 140	
13C7-PFUnA	3.84	104	30 - 140	
13C2-PFDOA	3.84	98.0	10 - 150	
13C2-PFTEDA	3.84	91.6	10 - 130	
13C3-PFBS	7.67	93.7	55 - 150	
13C3-PFHXS	7.67	96.9	55 - 150	
13C8-PFOS	7.67	94.3	45 - 140	
13C2-4:2FTS	15.3	110	60 - 200	
13C2-6:2FTS	15.3	127	60 - 200	
13C2-8:2FTS	15.3	95.7	50 - 200	
13C8-PFOSA	7.67	83.4	30 - 130	
D3-NMEFOSA	7.67	48.6	15 - 130	
D5-NETFOSA	7.67	51.1	10 - 130	
D3-NMEFOSAA	15.3	87.5	45 - 200	
D5-NETFOSAA	15.3	85.1	10 - 200	
D7-NMEFOSE	76.7	75.5	10 - 150	
D9-NETFOSE	76.7	82.8	10 - 150	
13C3-HFPO-DA	30.7	85.0	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23D0043
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW10-WGN01LF-2304W1 (23D0043-03) ng/L	Lab File ID: S2023-04-14A (38)			Analyzed: 04/14/23 22:26
13C4-PFBA	30.6	93.8	10 - 130	
13C5-PFPEA	15.3	90.8	35 - 150	
13C5-PFHXA	7.64	89.6	55 - 150	
13C4-PFHPA	7.64	89.9	55 - 150	
13C8-PFOA	7.64	89.6	60 - 140	
13C9-PFNA	3.82	92.9	55 - 140	
13C6-PFDA	3.82	84.8	50 - 140	
13C7-PFUnA	3.82	80.5	30 - 140	
13C2-PFDOA	3.82	84.8	10 - 150	
13C2-PFTEDA	3.82	78.2	10 - 130	
13C3-PFBS	7.64	76.1	55 - 150	
13C3-PFHXS	7.64	86.4	55 - 150	
13C8-PFOS	7.64	91.0	45 - 140	
13C2-4:2FTS	15.3	92.5	60 - 200	
13C2-6:2FTS	15.3	106	60 - 200	
13C2-8:2FTS	15.3	78.2	50 - 200	
13C8-PFOSA	7.64	61.2	30 - 130	
D3-NMEFOSA	7.64	35.6	15 - 130	
D5-NETFOSA	7.64	28.8	10 - 130	
D3-NMEFOSAA	15.3	80.2	45 - 200	
D5-NETFOSAA	15.3	82.7	10 - 200	
D7-NMEFOSE	76.4	39.1	10 - 150	
D9-NETFOSE	76.4	44.0	10 - 150	
13C3-HFPO-DA	30.6	88.3	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23D0043
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW10-WGFD01LF-2304W1 (23D0043-04) ng/L	Lab File ID: S2023-04-14A (40)			Analyzed: 04/14/23 22:52
13C4-PFBA	29.4	92.0	10 - 130	
13C5-PFPEA	14.7	95.7	35 - 150	
13C5-PFHXA	7.35	94.7	55 - 150	
13C4-PFHPA	7.35	96.6	55 - 150	
13C8-PFOA	7.35	90.5	60 - 140	
13C9-PFNA	3.68	90.6	55 - 140	
13C6-PFDA	3.68	89.3	50 - 140	
13C7-PFUnA	3.68	89.7	30 - 140	
13C2-PFDOA	3.68	87.1	10 - 150	
13C2-PFTEDA	3.68	71.2	10 - 130	
13C3-PFBS	7.35	93.7	55 - 150	
13C3-PFHXS	7.35	97.7	55 - 150	
13C8-PFOS	7.35	85.3	45 - 140	
13C2-4:2FTS	14.7	113	60 - 200	
13C2-6:2FTS	14.7	116	60 - 200	
13C2-8:2FTS	14.7	87.6	50 - 200	
13C8-PFOSA	7.35	69.3	30 - 130	
D3-NMEFOSA	7.35	40.4	15 - 130	
D5-NETFOSA	7.35	31.3	10 - 130	
D3-NMEFOSAA	14.7	77.9	45 - 200	
D5-NETFOSAA	14.7	74.7	10 - 200	
D7-NMEFOSE	73.5	46.6	10 - 150	
D9-NETFOSE	73.5	57.6	10 - 150	
13C3-HFPO-DA	29.4	86.9	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23D0043
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
Blank (BCD0119-BLK1) ng/L	Lab File ID: S2023-04-14A (7)			Analyzed: 04/14/23 15:47
13C4-PFBA	32.0	89.3	10 - 130	
13C5-PFPEA	16.0	88.4	35 - 150	
13C5-PFHXA	8.00	88.5	55 - 150	
13C4-PFHPA	8.00	96.5	55 - 150	
13C8-PFOA	8.00	89.2	60 - 140	
13C9-PFNA	4.00	84.9	55 - 140	
13C6-PFDA	4.00	76.6	50 - 140	
13C7-PFUnA	4.00	83.1	30 - 140	
13C2-PFDOA	4.00	80.2	10 - 150	
13C2-PFTEDA	4.00	65.7	10 - 130	
13C3-PFBS	8.00	76.8	55 - 150	
13C3-PFHXS	8.00	85.4	55 - 150	
13C8-PFOS	8.00	81.9	45 - 140	
13C2-4:2FTS	16.0	84.6	60 - 200	
13C2-6:2FTS	16.0	86.9	60 - 200	
13C2-8:2FTS	16.0	71.1	50 - 200	
13C8-PFOSA	8.00	67.4	30 - 130	
D3-NMEFOSA	8.00	26.1	15 - 130	
D5-NETFOSA	8.00	22.3	10 - 130	
D3-NMEFOSAA	16.0	69.8	45 - 200	
D5-NETFOSAA	16.0	65.9	10 - 200	
D7-NMEFOSE	80.0	46.3	10 - 150	
D9-NETFOSE	80.0	51.7	10 - 150	
13C3-HFPO-DA	32.0	80.5	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23D0043
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
LCS (BCD0119-BS1) ng/L	Lab File ID: S2023-04-14A (8)			Analyzed: 04/14/23 16:00
13C4-PFBA	32.0	97.0	10 - 130	
13C5-PFPEA	16.0	98.8	35 - 150	
13C5-PFHXA	8.00	97.4	55 - 150	
13C4-PFHPA	8.00	105	55 - 150	
13C8-PFOA	8.00	99.8	60 - 140	
13C9-PFNA	4.00	97.1	55 - 140	
13C6-PFDA	4.00	98.4	50 - 140	
13C7-PFUnA	4.00	109	30 - 140	
13C2-PFDOA	4.00	97.8	10 - 150	
13C2-PFTEDA	4.00	83.2	10 - 130	
13C3-PFBS	8.00	90.2	55 - 150	
13C3-PFHXS	8.00	95.1	55 - 150	
13C8-PFOS	8.00	88.9	45 - 140	
13C2-4:2FTS	16.0	94.3	60 - 200	
13C2-6:2FTS	16.0	98.5	60 - 200	
13C2-8:2FTS	16.0	93.3	50 - 200	
13C8-PFOSA	8.00	71.4	30 - 130	
D3-NMEFOSA	8.00	36.7	15 - 130	
D5-NETFOSA	8.00	38.8	10 - 130	
D3-NMEFOSAA	16.0	76.3	45 - 200	
D5-NETFOSAA	16.0	72.3	10 - 200	
D7-NMEFOSE	80.0	44.3	10 - 150	
D9-NETFOSE	80.0	79.0	10 - 150	
13C3-HFPO-DA	32.0	90.8	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23D0043
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
MRL Check (BCD0119-MRL1) ng/L	Lab File ID: S2023-04-14A (9)			Analyzed: 04/14/23 16:12
13C4-PFBA	32.0	99.2	10 - 130	
13C5-PFPEA	16.0	98.7	35 - 150	
13C5-PFHXA	8.00	98.7	55 - 150	
13C4-PFHPA	8.00	102	55 - 150	
13C8-PFOA	8.00	94.0	60 - 140	
13C9-PFNA	4.00	86.5	55 - 140	
13C6-PFDA	4.00	90.4	50 - 140	
13C7-PFUnA	4.00	97.5	30 - 140	
13C2-PFDOA	4.00	97.3	10 - 150	
13C2-PFTEDA	4.00	89.4	10 - 130	
13C3-PFBS	8.00	81.5	55 - 150	
13C3-PFHXS	8.00	95.5	55 - 150	
13C8-PFOS	8.00	88.5	45 - 140	
13C2-4:2FTS	16.0	94.9	60 - 200	
13C2-6:2FTS	16.0	99.6	60 - 200	
13C2-8:2FTS	16.0	83.1	50 - 200	
13C8-PFOSA	8.00	72.8	30 - 130	
D3-NMEFOSA	8.00	33.8	15 - 130	
D5-NETFOSA	8.00	34.9	10 - 130	
D3-NMEFOSAA	16.0	81.3	45 - 200	
D5-NETFOSAA	16.0	75.4	10 - 200	
D7-NMEFOSE	80.0	63.8	10 - 150	
D9-NETFOSE	80.0	74.1	10 - 150	
13C3-HFPO-DA	32.0	94.9	25 - 160	

METHOD BLANK SUMMARY

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23D0043
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Blank ID:	BCD0119-BLK1	Batch:	BCD0119
Prepared:	04/10/2023 08:18		

Client Sample ID	Laboratory Sample ID	Lab File ID	Time Analyzed
LCS	BCD0119-BS1	S2023-04-14A (8)	16:00
MRL Check	BCD0119-MRL1	S2023-04-14A (9)	16:12
AF-RHMW225401-WGN01B-2304W1	23D0043-01	S2023-04-14A (34)	21:34
AF-HDMW225303-WGN01LF-2304W1	23D0043-02	S2023-04-14A (36)	22:00
AF-RHMW10-WGN01LF-2304W1	23D0043-03	S2023-04-14A (38)	22:26
AF-RHMW10-WGFD01LF-2304W1	23D0043-04	S2023-04-14A (40)	22:52

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0119-BLK1	File ID:	S2023-04-14A (7)
Sampled:		Prepared:	04/10/23 08:18	Analyzed:	04/14/23 15:47
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.80 U	1.6	0.80	0.21	U
PFPEA	0.40 U	0.80	0.40	0.065	U
PFHXA	0.20 U	0.40	0.20	0.055	U
PFHPA	0.20 U	0.40	0.20	0.041	U
PFOA	0.30 U	0.40	0.30	0.15	U
PFNA	0.20 U	0.40	0.20	0.082	U
PFDA	0.20 U	0.40	0.20	0.10	U
PFUnA	0.30 U	0.40	0.30	0.16	U
PFDOA	0.20 U	0.40	0.20	0.11	U
PFTRDA	0.30 U	0.40	0.30	0.20	U
PFTEDA	0.30 U	0.40	0.30	0.20	U
PFBS	0.20 U	0.40	0.20	0.037	U
PFPES	0.20 U	0.40	0.20	0.063	U
PFHXS	0.20 U	0.40	0.20	0.032	U
PFHPS	0.20 U	0.40	0.20	0.051	U
PFOS	0.166 J	0.40	0.20	0.064	MI2, J
PFNS	0.20 U	0.40	0.20	0.12	U
PFDS	0.30 U	0.40	0.30	0.15	U
PFDOS	0.20 U	0.40	0.20	0.12	U
4:2FTS	0.80 U	1.6	0.80	0.29	U
6:2FTS	0.80 U	1.6	0.80	0.31	U
8:2FTS	0.80 U	1.6	0.80	0.082	U
PFOSA	0.20 U	0.40	0.20	0.10	U
NMeFOSA	0.80 U	1.6	0.80	0.47	U
NEtFOSA	0.80 U	1.6	0.80	0.41	U
NMeFOSAA	0.20 U	0.40	0.20	0.11	U
NEtFOSAA	0.20 U	0.40	0.20	0.11	U
NMeFOSE	1.2 U	1.6	1.2	1.0	U
NEtFOSE	1.2 U	1.6	1.2	1.0	U
HFPO-DA	0.40 U				

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0119-BLK1	File ID:	S2023-04-14A (7)
Sampled:		Prepared:	04/10/23 08:18	Analyzed:	04/14/23 15:47
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.40 U	0.80	0.40	0.12	U
PFEESA	0.40 U	0.80	0.40	0.11	U
PFMPA	0.40 U	0.80	0.40	0.054	U
PFMBA	0.40 U	0.80	0.40	0.091	U
NFDHA	0.40 U	0.80	0.40	0.30	U
9CL-PF3ONS	0.40 U	0.80	0.40	0.21	U
11CL-PF3OUDS	0.40 U	0.80	0.40	0.21	U
3:3FTCA	0.80 U	1.6	0.80	0.57	U
5:3FTCA	0.80 U	1.6	0.80	0.44	U
7:3FTCA	0.80 U	1.6	0.80	0.55	U

LCS / LCS DUPLICATE RECOVERY

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23D0043
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Preparation:	EPA 1633
Batch:	BCD0119	Laboratory ID:	BCD0119-BS1
Column:			

ANALYTE	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC.	QC LIMITS REC.
PFBA	16.0	16.2	101	58 - 148
PFPEA	8.00	7.80	97.5	54 - 152
PFHXA	4.00	4.00	99.9	55 - 152
PFHPA	4.00	4.25	106	54 - 154
PFOA	4.00	4.07	102	52 - 161
PFNA	4.00	4.03	101	59 - 149
PFDA	4.00	3.70	92.6	52 - 147
PFUnA	4.00	3.66	91.5	48 - 159
PFDOA	4.00	4.35	109	64 - 142
PFTRDA	4.00	3.99	99.8	49 - 148
PFTEDA	4.00	4.44	111	47 - 161
PFBS	3.54	3.43	96.8	62 - 144
PFPES	3.76	3.83	102	59 - 151
PFHXS	3.66	3.64	99.5	57 - 146
PFHPS	3.82	4.01	105	55 - 152
PFOS	3.72	3.74	100	58 - 149
PFNS	3.84	3.55	92.5	52 - 148
PFDS	3.86	3.21	83.2	51 - 147
PFDOS	3.88	3.19	82.1	36 - 145
4:2FTS	15.0	14.4	96.1	67 - 146
6:2FTS	15.2	17.2	113	61 - 151
8:2FTS	15.4	14.9	97.0	63 - 152
PFOSA	4.00	4.73	118	61 - 148
NMeFOSA	16.0	15.6	97.7	63 - 145
NEtFOSA	16.0	15.4	96.6	65 - 139
NMeFOSAA	4.00	3.67	91.8	58 - 144
NEtFOSAA	4.00	3.58	89.5	59 - 146
NMeFOSE	16.0	17.2	107	71 - 136
NEtFOSE	16.0	15.7	97.9	69 - 137
HFPO-DA	8.00	7.95	99.4	63 - 144
ADONA	7.56	8.44	112	68 - 146
PFEESA	7.12	6.95	97.6	56 - 151
PFMPA	8.00	8.79	110	51 - 145
PFMBA	8.00	7.79	97.3	55 - 148

LCS / LCS DUPLICATE RECOVERY

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23D0043
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Preparation:	EPA 1633
Batch:	BCD0119	Laboratory ID:	BCD0119-BS1
Column:			

ANALYTE	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC.	QC LIMITS REC.
NFDHA	8.00	7.68	96.0	48 - 161
9CL-PF3ONS	7.48	7.99	107	56 - 156
11CL-PF3OUDS	7.56	7.13	94.3	46 - 156
3:3FTCA	16.0	16.1	100	62 - 129
5:3FTCA	16.0	14.8	92.7	63 - 134
7:3FTCA	16.0	15.5	97.0	50 - 138

CALIBRATION SUMMARY

Chemist:DAG
Instrument:Saphira
Type:Sciex Q5500

Quant Method:163

Analyte	(Q1 / Q3)	Internal Standard	Multiplier	AcidFactor	Function	Qualifier
PFBA	(213.0 / 169.0)	13C4_PFBA_EIS	4.0000	1.0000	y = 0.43691 x (std. dev. = 0.01299) (weighting: None)	%RSE=3.0
PFPeA	(263.0 / 219.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.48050 x (std. dev. = 0.04189) (weighting: None)	%RSE=8.7
PFHxA	(313.0 / 269.0)	13C5_PFHxA_EIS	1.0000	1.0000	y = 0.48233 x (std. dev. = 0.04735) (weighting: None)	%RSE=9.8
PFHpA	(363.0 / 319.0)	13C4_PFHpA_EIS	1.0000	1.0000	y = 0.43100 x (std. dev. = 0.01330) (weighting: None)	%RSE=3.1
PFOA	(413.0 / 369.0)	13C8_PFOA_EIS	1.0000	1.0000	y = 0.47144 x (std. dev. = 0.01483) (weighting: None)	%RSE=3.1
PFNA	(463.0 / 419.0)	13C9_PFNA_EIS	1.0000	1.0000	y = 0.92238 x (std. dev. = 0.06691) (weighting: None)	%RSE=7.3
PFDA	(513.0 / 469.0)	13C6_PFDA_EIS	1.0000	1.0000	y = 0.93994 x (std. dev. = 0.04139) (weighting: None)	%RSE=4.4
PFUnA	(563.0 / 519.0)	13C7_PFUnA_EIS	1.0000	1.0000	y = 0.87986 x (std. dev. = 0.06286) (weighting: None)	%RSE=7.1
PFDoA	(613.0 / 569.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.90697 x (std. dev. = 0.10285) (weighting: None)	%RSE=11.3
PFTrDA	(663.0 / 619.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.82635 x (std. dev. = 0.11138) (weighting: None)	%RSE=13.5
PFTeDA	(713.0 / 669.0)	13C2_PFTeDA_EIS	1.0000	1.0000	y = 0.91649 x (std. dev. = 0.07187) (weighting: None)	%RSE=7.8
PFBS	(299.0 / 80.0)	13C3_PFBS_EIS	1.0000	0.8847	y = 0.31553 x (std. dev. = 0.01410) (weighting: None)	%RSE=4.5
PFPeS	(349.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9384	y = 0.86571 x (std. dev. = 0.05930) (weighting: None)	%RSE=6.8
PFHxS	(399.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9110	y = 0.71613 x (std. dev. = 0.02797) (weighting: None)	%RSE=3.9
PFHpS	(449.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9514	y = 0.38359 x (std. dev. = 0.01481) (weighting: None)	%RSE=3.9
PFOS	(499.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9275	y = 0.52480 x (std. dev. = 0.02350) (weighting: None)	%RSE=4.5
PFNS	(549.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9599	y = 0.50756 x (std. dev. = 0.01735) (weighting: None)	%RSE=3.4
PFDS	(599.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9631	y = 0.57570 x (std. dev. = 0.03324) (weighting: None)	%RSE=5.8
PFDoS	(699.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9696	y = 0.44582 x (std. dev. = 0.02632) (weighting: None)	%RSE=5.9
4:2FTS	(327.0 / 307.0)	13C2_4:2FTS_EIS	4.0000	0.9345	y = 2.77506 x (std. dev. = 0.18390) (weighting: None)	%RSE=6.6
6:2FTS	(427.0 / 407.0)	13C2_6:2FTS_EIS	4.0000	0.9490	y = 1.62410 x (std. dev. = 0.12394) (weighting: None)	%RSE=7.6
8:2FTS	(527.0 / 507.0)	13C2_8:2FTS_EIS	4.0000	0.9583	y = 1.35204 x (std. dev. = 0.16012) (weighting: None)	%RSE=11.8
PFOSA	(498.0 / 78.0)	13C8_PFOSA_EIS	1.0000	1.0000	y = 0.43809 x (std. dev. = 0.03161) (weighting: None)	%RSE=7.2
NMeFOSA	(512.0 / 219.0)	D3_NMeFOSA_EIS	4.0000	1.0000	y = 1.65948 x (std. dev. = 0.18905) (weighting: None)	%RSE=11.4
NEtFOSA	(526.0 / 219.0)	D5_NEtFOSA_EIS	4.0000	1.0000	y = 2.10109 x (std. dev. = 0.08353) (weighting: None)	%RSE=4.0
NMeFOSAA	(570.0 / 419.0)	D3_MeFOSAA_EIS	1.0000	1.0000	y = 0.21250 x (std. dev. = 0.02042) (weighting: None)	%RSE=9.6
NEtFOSAA	(584.0 / 419.0)	D5_EtFOSAA_EIS	1.0000	1.0000	y = 0.22115 x (std. dev. = 0.01480) (weighting: None)	%RSE=6.7
NMeFOSE	(616.0 / 59.0)	D7_NMeFOSE_EIS	4.0000	1.0000	y = 0.21835 x (std. dev. = 0.00826) (weighting: None)	%RSE=3.8
NEtFOSE	(630.0 / 59.0)	D9_NEtFOSE_EIS	4.0000	1.0000	y = 0.19696 x (std. dev. = 0.00566) (weighting: None)	%RSE=2.9
HFPO-DA	(285.0 / 169.0)	13C3_HFPODA_EIS	2.0000	1.0000	y = 0.21113 x (std. dev. = 0.01087) (weighting: None)	%RSE=5.1
ADONA	(377.0 / 85.0)	13C3_HFPODA_EIS	2.0000	0.9427	y = 0.71112 x (std. dev. = 0.05507) (weighting: None)	%RSE=7.7
9Cl-Pf3ONS	(531.0 / 351.0)	13C3_HFPODA_EIS	2.0000	0.9333	y = 2.11952 x (std. dev. = 0.15858) (weighting: None)	%RSE=7.5
11Cl-PF3OUDS	(631.0 / 451.0)	13C3_HFPODA_EIS	2.0000	0.9432	y = 1.26621 x (std. dev. = 0.09245) (weighting: None)	%RSE=7.3
3:3FTCA	(241.0 / 177.0)	13C5_PFPeA_EIS	4.0000	1.0000	y = 0.03521 x (std. dev. = 0.00270) (weighting: None)	%RSE=7.7
5:3FTCA	(341.0 / 236.7)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.30323 x (std. dev. = 0.03529) (weighting: None)	%RSE=11.6
7:3FTCA	(441.0 / 317.0)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.53101 x (std. dev. = 0.04389) (weighting: None)	%RSE=8.3
PFEESA	(315.0 / 135.0)	13C5_PFHxA_EIS	2.0000	0.8925	y = 1.08296 x (std. dev. = 0.10921) (weighting: None)	%RSE=10.1
PFMPA	(229.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.10232 x (std. dev. = 0.00542) (weighting: None)	%RSE=5.3
PFMBA	(279.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.37466 x (std. dev. = 0.01726) (weighting: None)	%RSE=4.6
NFDHA	(295.0 / 201.0)	13C5_PFHxA_EIS	2.0000	1.0000	y = 0.49308 x (std. dev. = 0.05432) (weighting: None)	%RSE=11.0
TDCA	(499.0 / 80.0)	13C8_PFOS_EIS	1.0000	1.0000	y = 0.48700 x (std. dev. = 0.05274) (weighting: None)	%RSE=10.8
13C3_PFBA_IIS	(216.0 / 172.0)	13C3_PFBA_IIS	1.0000	1.0000	y = 121908.6832 x	%RSD=11.8
13C2_PFHxA_IIS	(315.0 / 270.0)	13C2_PFHxA_IIS	1.0000	1.0000	y = 202823.2734 x	%RSD=6.9
13C4_PFOA_IIS	(417.0 / 372.0)	13C4_PFOA_IIS	1.0000	1.0000	y = 317791.4785 x	%RSD=7.1
13C5_PFNA_IIS	(468.0 / 423.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 303499.3685 x	%RSD=3.9
13C2_PFDA_IIS	(515.0 / 470.1)	13C2_PFDA_IIS	1.0000	1.0000	y = 324469.4448 x	%RSD=7.7
18O2_PFHxS_IIS	(403.0 / 83.9)	18O2_PFHxS_IIS	1.0000	1.0000	y = 447856.5431 x	%RSD=5.4

Chemist:DAG
Instrument:Saphira
Type:Sciex Q5500

Quant Method:163

Analyte	(Q1 / Q3)	Internal Standard	Multiplier	AcidFactor	Function	Qualifier
13C4_PFOS_IIS	(503.0 / 79.9)	13C4_PFOS_IIS	1.0000	1.0000	y = 680071.7374 x	%RSD=5.9
13C4_PFBA_EIS	(217.0 / 172.0)	13C3_PFBA_IIS	8.0000	1.0000	y = 8.4820 x	%RSD=3.9
13C5_PFPeA_EIS	(268.0 / 223.0)	13C2_PFHxA_IIS	4.0000	1.0000	y = 4.4805 x	%RSD=6.7
13C5_PFHxA_EIS	(318.0 / 273.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 2.8348 x	%RSD=5.9
13C4_PFHpA_EIS	(367.0 / 322.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 2.4761 x	%RSD=6.3
13C8_PFOA_EIS	(421.0 / 376.0)	13C4_PFOA_IIS	2.0000	1.0000	y = 1.9740 x	%RSD=5.4
13C9_PFNA_EIS	(472.0 / 427.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 0.9395 x	%RSD=7.3
13C6_PFDA_EIS	(519.0 / 474.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.1218 x	%RSD=7.6
13C7_PFUnA_EIS	(570.0 / 525.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.0414 x	%RSD=9.2
13C2_PFDoA_EIS	(615.0 / 570.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 0.8916 x	%RSD=7.2
13C2_PFTeDA_EIS	(715.0 / 670.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 0.8408 x	%RSD=11.2
13C3_PFBS_EIS	(302.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 3.1400 x	%RSD=8.1
13C3_PFHxS_EIS	(402.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 1.8435 x	%RSD=5.6
13C8_PFOS_EIS	(507.0 / 80.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 2.4230 x	%RSD=3.9
13C2_4:2FTS_EIS	(329.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.5656 x	%RSD=7.4
13C2_6:2FTS_EIS	(429.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.6456 x	%RSD=8.6
13C2_8:2FTS_EIS	(529.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.8546 x	%RSD=11.8
13C8_PFOSA_EIS	(506.0 / 78.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 3.9335 x	%RSD=3.8
D3_NMeFOSA_EIS	(515.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.8394 x	%RSD=11.6
D5_NEtFOSA_EIS	(531.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.6925 x	%RSD=5.3
D3_MeFOSAA_EIS	(573.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 1.0386 x	%RSD=6.6
D5_EtFOSAA_EIS	(589.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 0.8519 x	%RSD=8.5
D7_NMeFOSE_EIS	(623.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 2.7866 x	%RSD=7.9
D9_NEtFOSE_EIS	(639.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 3.6830 x	%RSD=6.4
13C3_HFPODA_EIS	(287.0 / 169.0)	13C2_PFHxA_IIS	8.0000	1.0000	y = 6.3969 x	%RSD=7.5

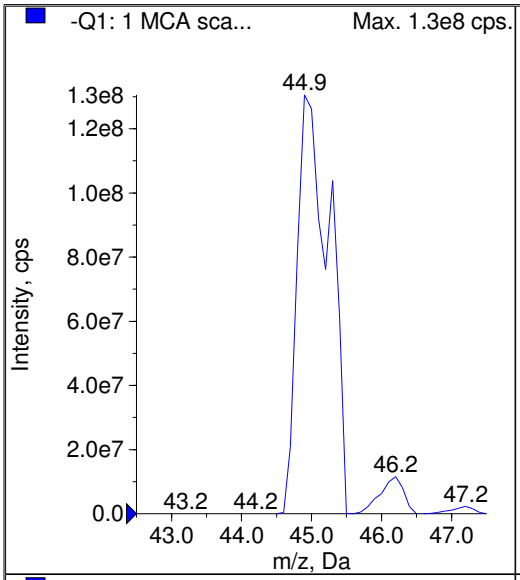
$$x = \text{Concentration Analyte}$$

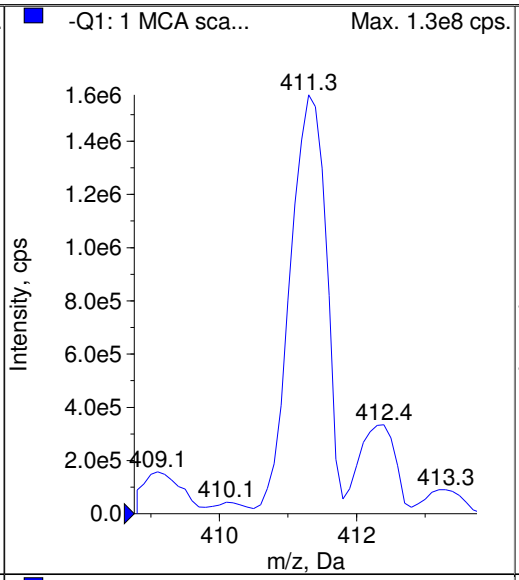
$$y = \text{Area Ratio} = \frac{\text{Area Analyte}}{\text{Area Internal Standard}}$$

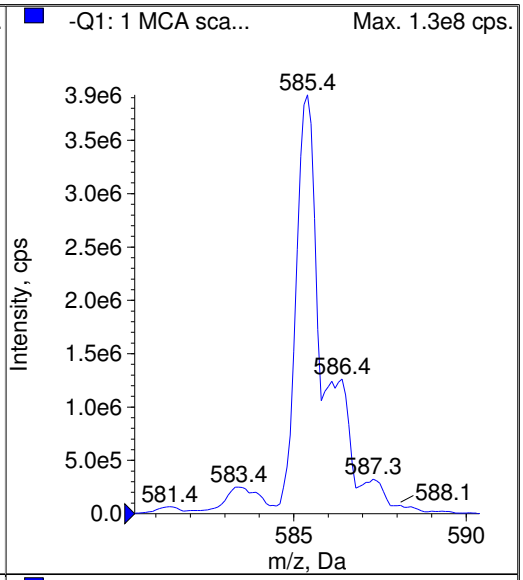
$$\text{Acid Factor} = \frac{\text{Moleculat weight Acid}}{\text{Molecular weight Salt}}$$

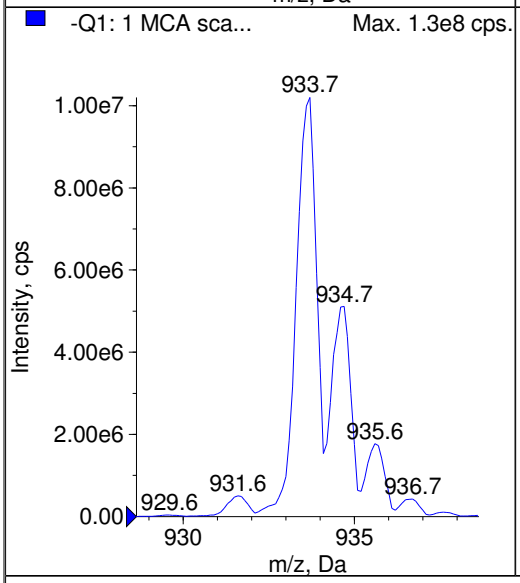
$$\text{Multiplier} = \frac{\text{Concentration of Analyte}}{\text{Concentration of PFOA}} \text{ in curve standard mix}$$

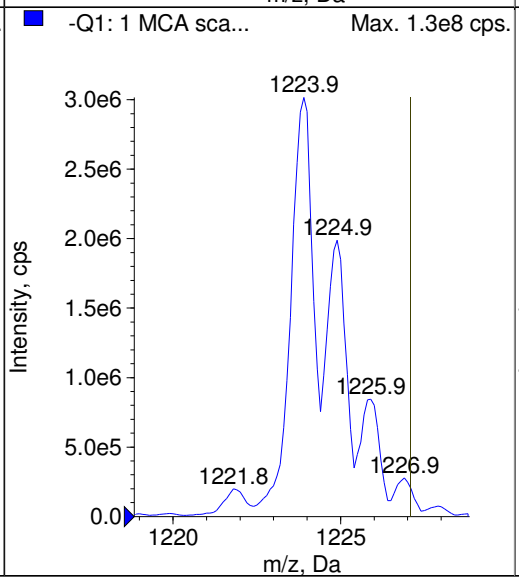
$$\text{Result } \left(\frac{\text{ng}}{\text{mL}}\right) = \text{x*Multiplier*Acid Factor}$$

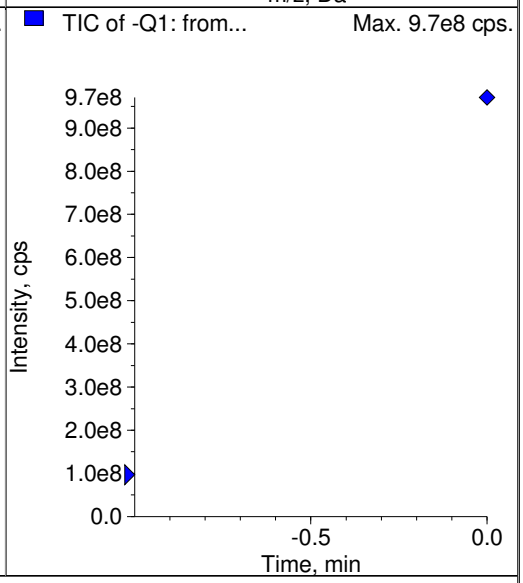






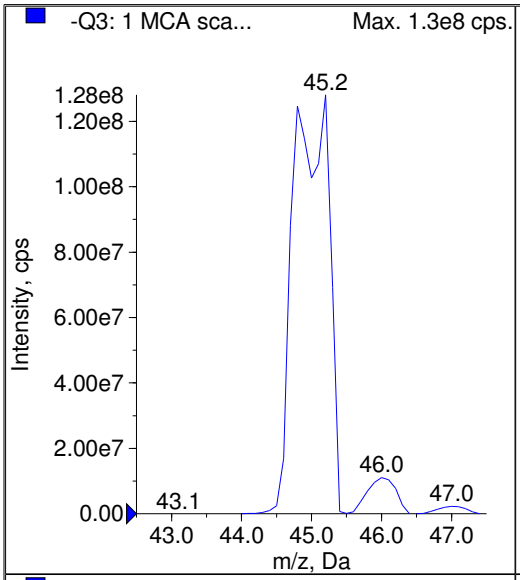


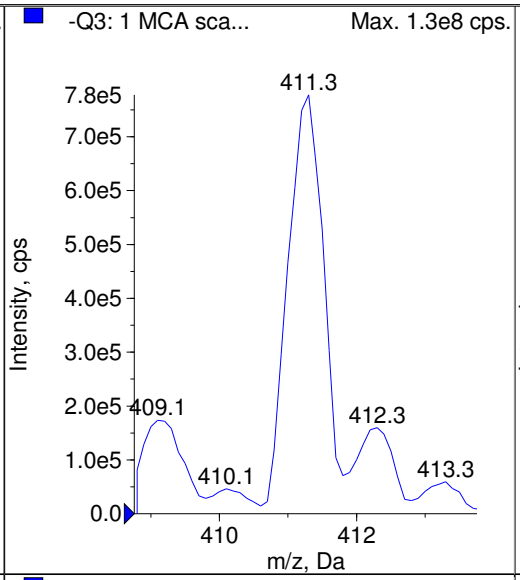


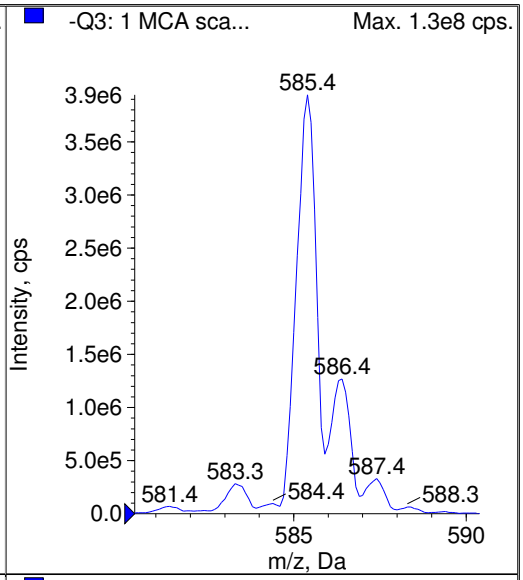


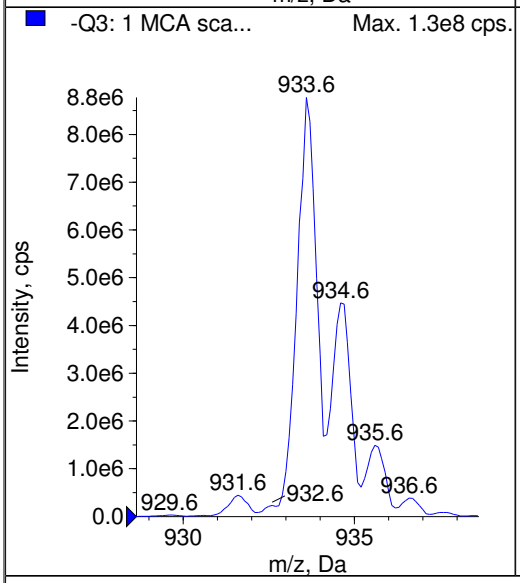
Peak List for " -Q1: 1 MCA scans from Sample 1 (TuneSampleID) of MT20221111142838.wiff (Turbo Spray)"

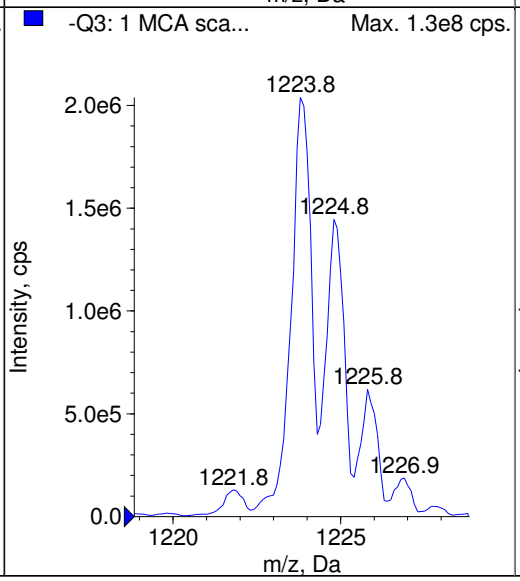
	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0305	1.3061e8	0.6158	-0.0325
2	411.2590	411.3148	1.5745e6	0.6085	-0.0558
3	585.3850	585.3651	3.9270e6	0.6307	0.0199
4	933.6360	933.6197	1.0205e7	0.6552	0.0163
5	1223.8450	1223.8627	3.0170e6	0.6967	-0.0177
6	1572.0970	n/a	n/a	n/a	n/a
7	1863.3060	n/a	n/a	n/a	n/a
8	1979.3890	n/a	n/a	n/a	n/a

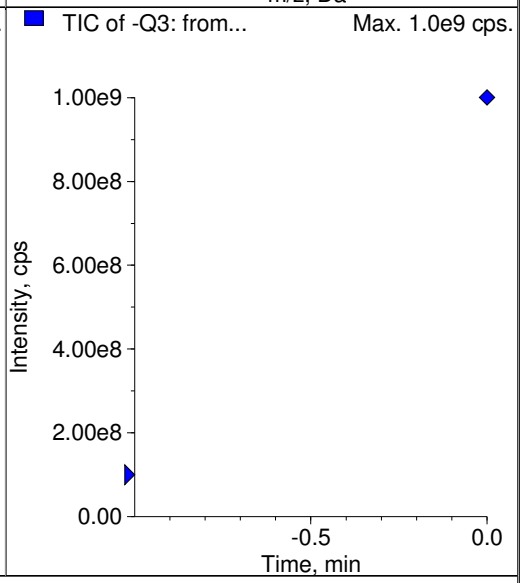












Peak List for " -Q3: 1 MCA scans from Sample 1 (TuneSampleID) of MT20221111142403.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9799	1.2814e8	0.6414	0.0181
2	411.2590	411.2677	7.7810e5	0.6076	-8.6898e-3
3	585.3850	585.3784	3.9438e6	0.6511	6.5868e-3
4	933.6360	933.6279	8.7759e6	0.6302	8.0526e-3
5	1223.8450	1223.8609	2.0397e6	0.6225	-0.0159
6	1572.0970	n/a	n/a	n/a	n/a
7	1863.3060	n/a	n/a	n/a	n/a
8	1979.3890	n/a	n/a	n/a	n/a

EPA 1633

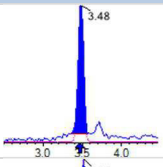
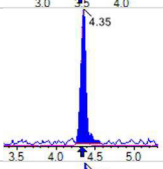
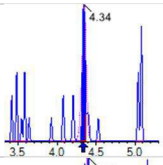
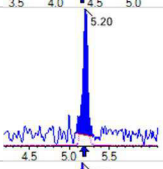
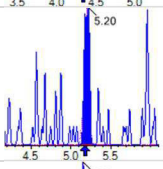
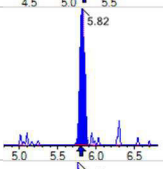
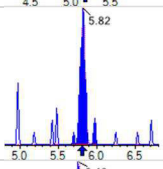
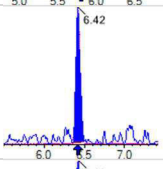
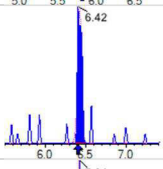
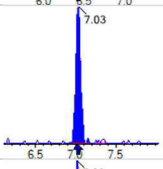
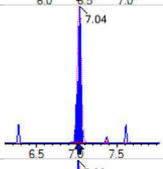
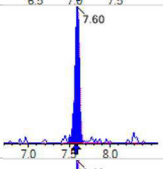
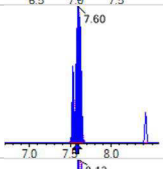
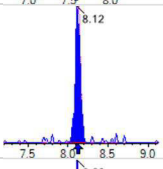
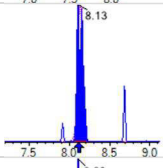
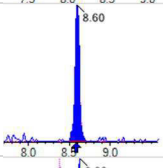
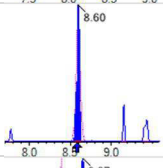
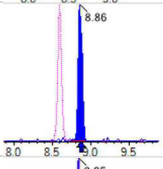
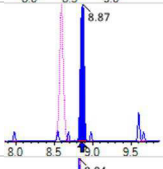
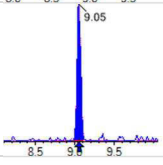
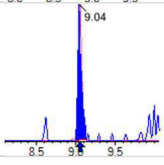
Initial Calibration: SC01442

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (1)
Acquired: 2023/04/12 - 10:12

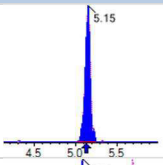
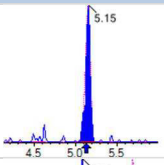
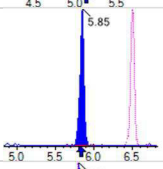
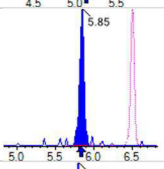
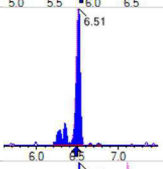
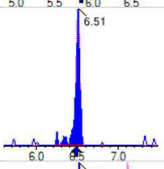
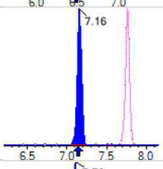
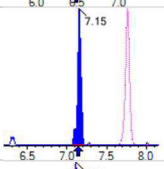
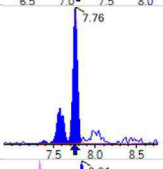
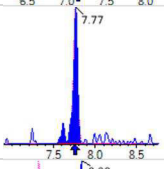
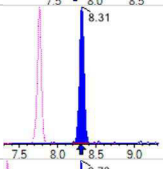
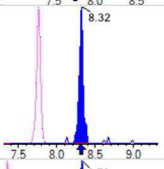
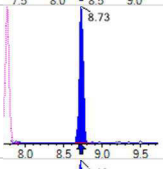
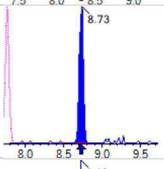
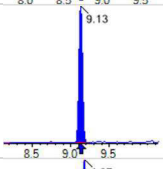
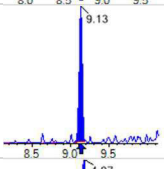
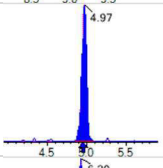
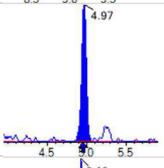
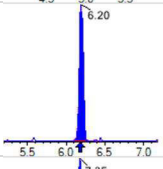
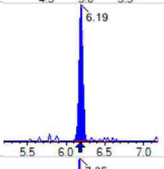
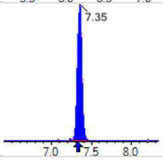
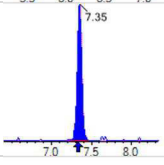
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 51001	(3.48 , 1.00) (0.00 , N/A , 0.0)	65.9	N/A 0.0 0.0	0.4175	N/A			
PFPeA	(263.0 / 219.0) 52561 (263.0 / 69.0) 586	(4.35 , 1.00) (0.00 , N/A , 0.6)	179.1 29.5	0.0111 84.9 84.9	0.2409	N/A			
PFHxA	(313.0 / 269.0) 30080 (313.0 / 119.0) 3796	(5.20 , 1.00) (0.00 , N/A , 0.0)	44.1 30.9	0.1262 115.6 115.6	0.1072	N/A			
PFHpA	(363.0 / 319.0) 20072 (363.0 / 169.0) 6725	(5.82 , 1.00) (-0.01 , N/A , 0.2)	963.9 151553.4	0.3351 109.8 109.8	0.0949	N/A			
PFOA	(413.0 / 369.0) 30753 (413.0 / 169.0) 7072	(6.42 , 1.00) (0.00 , N/A , -0.3)	84.9 14374.0	0.2300 73.5 73.5	0.1043	N/A			
PFNA	(463.0 / 419.0) 28672 (463.0 / 169.0) 7654	(7.03 , 1.00) (0.00 , N/A , -0.4)	10368.7 417426.4	0.2670 125.0 125.0	0.1129	N/A			
PFDA	(513.0 / 469.0) 33191 (513.0 / 169.0) 5472	(7.60 , 1.00) (0.00 , N/A , -0.1)	133.6 67.4	0.1649 143.8 143.8	0.1021	N/A			
PFUnA	(563.0 / 519.0) 34830 (563.0 / 169.0) 4800	(8.12 , 1.00) (-0.01 , N/A , -0.6)	144.6 16497.8	0.1378 116.6 116.6	0.1158	N/A			
PFDoA	(613.0 / 569.0) 31112 (613.0 / 169.0) 2979	(8.60 , 1.00) (0.00 , N/A , -0.1)	154.2 1013.2	0.0958 55.9 55.9	0.1252	N/A			
PFTrDA	(663.0 / 619.0) 28598 (663.0 / 169.0) 5175	(8.86 , 1.03) (N/A , 0.00 , -0.3)	296.2 318.4	0.1809 73.0 73.0	0.1263	N/A			
PFTeDA	(713.0 / 669.0) 27989 (713.0 / 169.0) 5596	(9.05 , 1.00) (0.00 , N/A , 0.4)	145.4 106.7	0.1999 99.2 99.2	0.1117	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (1)
Acquired: 2023/04/12 - 10:12

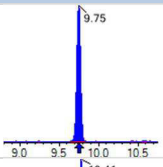
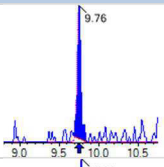
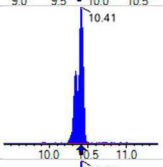
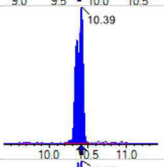
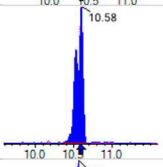
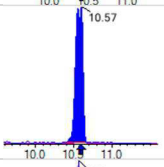
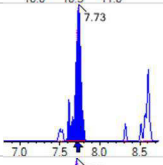
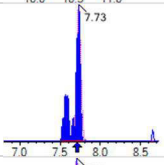
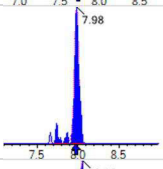
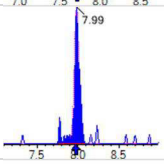
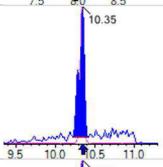
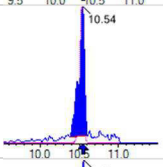
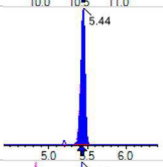
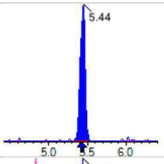
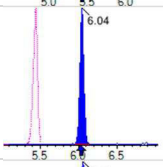
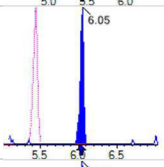
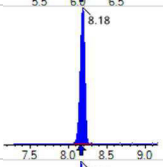
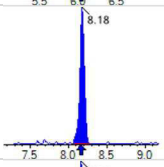
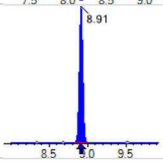
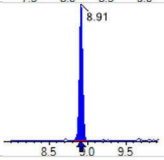
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 49366 (299.0 / 99.0) 26991	(5.15 , 1.00) (0.00 , N/A , -0.3)	4699.0 459.6	0.5467 85.0 85.0	0.0963	N/A			
PFPeS	(349.0 / 80.0) 77022 (349.0 / 99.0) 31099	(5.85 , 0.90) (N/A , 0.02 , 0.1)	942.9 950.0	0.4038 119.1 119.1	0.0982	N/A			
PFHxS	(399.0 / 80.0) 63405 (399.0 / 99.0) 20674	(6.51 , 1.00) (0.01 , N/A , 0.3)	82149.7 1228.7	0.3261 94.1 94.1	0.0949	N/A			
PFHpS	(449.0 / 80.0) 64615 (449.0 / 99.0) 20246	(7.16 , 0.92) (N/A , 0.02 , 0.1)	3368.0 432.9	0.3133 112.9 112.9	0.0938	N/A			
PFOS	(499.0 / 80.0) 96931 (499.0 / 99.0) 26309	(7.76 , 1.00) (0.00 , N/A , -0.4)	147.8 143.7	0.2714 121.3 121.3	0.1002	N/A			MI2 DG 2023-04-12
PFNS	(549.0 / 80.0) 82249 (549.0 / 99.0) 19991	(8.31 , 1.07) (N/A , 0.01 , -0.3)	1889.0 59142.4	0.2431 100.4 100.4	0.0910	N/A			
PFDS	(599.0 / 80.0) 105015 (599.0 / 99.0) 26277	(8.73 , 1.12) (N/A , 0.01 , 0.0)	1257.8 1562.6	0.2502 111.7 111.7	0.1028	N/A			
PFDoS	(699.0 / 80.0) 84382 (699.0 / 99.0) 15119	(9.13 , 1.18) (N/A , 0.00 , -0.1)	456.7 92.1	0.1792 74.9 74.9	0.1074	N/A			
4:2FTS	(327.0 / 307.0) 72986 (327.0 / 81.0) 43585	(4.97 , 1.00) (0.00 , N/A , 0.3)	546.7 134.3	0.5972 87.8 87.8	0.3572	N/A			
6:2FTS	(427.0 / 407.0) 54126 (427.0 / 81.0) 32930	(6.20 , 1.00) (0.00 , N/A , 0.3)	1803.8 203.8	0.6084 86.4 86.4	0.4133	N/A			
8:2FTS	(527.0 / 507.0) 59925 (527.0 / 81.0) 42062	(7.35 , 1.00) (0.00 , N/A , 0.1)	12059.6 376.4	0.7019 103.9 103.9	0.4299	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (1)
Acquired: 2023/04/12 - 10:12

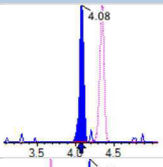
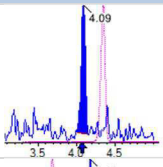
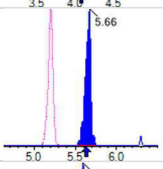
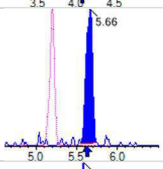
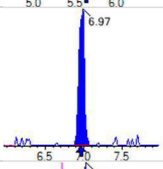
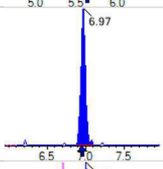
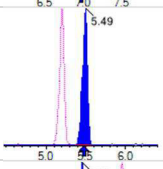
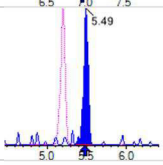
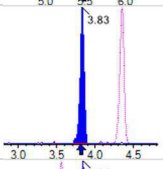
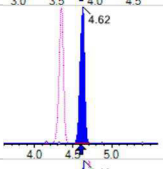
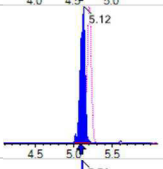
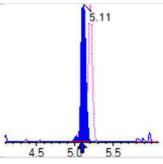
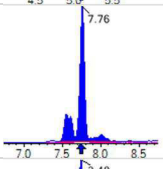
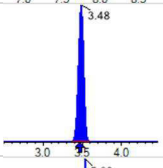
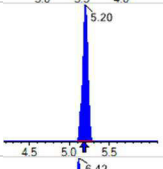
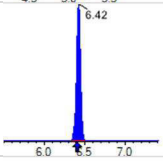
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 131881 (498.0 / 478.0) 3462	(9.75 , 1.00) (0.00 , N/A , -0.5)	702.2 42.5	0.0262 106.0 106.0	0.1116	N/A			
NMeFOSA	(512.0 / 219.0) 93392 (512.0 / 169.0) 75839	(10.41 , 1.00) (0.00 , N/A , 1.1)	778.9 530.4	0.8120 93.6 93.6	0.4507	N/A			
NEtFOSA	(526.0 / 219.0) 99939 (526.0 / 169.0) 117151	(10.58 , 1.00) (-0.01 , N/A , 0.5)	758.8 639.4	1.1722 93.8 93.8	0.4146	N/A			
NMeFOSAA	(570.0 / 419.0) 14664 (570.0 / 483.0) 7645	(7.73 , 1.00) (0.00 , N/A , 0.4)	52.4 2885.4	0.5213 112.5 112.5	0.0968	N/A			
NEtFOSAA	(584.0 / 419.0) 12358 (584.0 / 526.0) 8768	(7.98 , 1.00) (0.00 , N/A , -0.2)	382.1 589.2	0.7095 116.2 116.2	0.0935	N/A			
NMeFOSE	(616.0 / 59.0) 35761	(10.35 , 1.00) (0.01 , N/A , 0.0)	103.8	N/A 0.0 0.0	0.3936	N/A			
NEtFOSE	(630.0 / 59.0) 43668	(10.54 , 1.00) (0.01 , N/A , 0.0)	117.8	N/A 0.0 0.0	0.3874	N/A			
HFPO-DA	(285.0 / 169.0) 29718 (285.0 / 185.0) 74815	(5.44 , 1.00) (0.00 , N/A , 0.2)	196.1 467.7	2.5175 96.8 96.8	0.2057	N/A			
ADONA	(377.0 / 85.0) 101012 (377.0 / 251.0) 13309	(6.04 , 1.11) (N/A , 0.02 , -0.2)	783.0 1346.4	0.1318 132.7 132.7	0.1957	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 296927 (533.0 / 353.0) 80758	(8.18 , 1.50) (N/A , 0.02 , 0.3)	764.4 350.3	0.2720 93.7 93.7	0.1911	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 178084 (633.0 / 453.0) 57186	(8.91 , 1.64) (N/A , 0.00 , 0.0)	1014.0 498.9	0.3211 95.8 95.8	0.1939	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (1)
Acquired: 2023/04/12 - 10:12

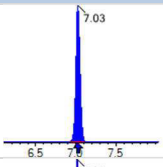
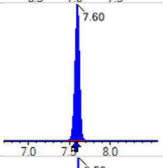
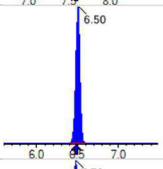
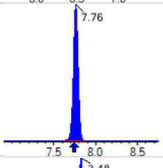
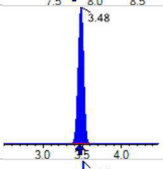
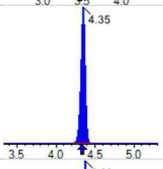
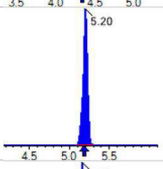
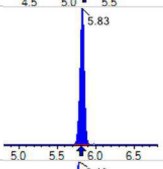
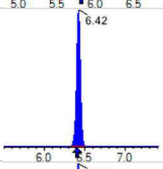
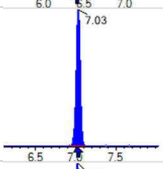
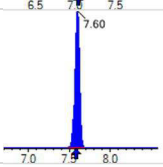
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 3409 (241.0 / 117.0) 4986	(4.08 , 0.94) (N/A , 0.02 , -0.6)	23.9 11.0	1.4625 88.6 88.6	0.4263	N/A			
5:3FTCA	(341.0 / 236.7) 15735 (341.0 / 217.0) 29058	(5.66 , 1.09) (N/A , 0.03 , 0.3)	936610.1 91.4	1.8468 117.7 117.7	0.3568	N/A			
7:3FTCA	(441.0 / 317.0) 31485 (441.0 / 337.0) 29537	(6.97 , 1.34) (N/A , 0.01 , 0.2)	123.9 1462.5	0.9381 108.9 108.9	0.4077	N/A			
PFEESA	(315.0 / 135.0) 76309 (315.0 / 83.0) 22009	(5.49 , 1.06) (N/A , 0.03 , 0.1)	3255.2 93.0	0.2884 118.2 118.2	0.2162	N/A			
PFMPA	(229.0 / 85.0) 9287	(3.83 , 0.88) (N/A , 0.02 , 0.0)	1128.6	N/A 0.0 0.0	0.1998	N/A			
PFMBA	(279.0 / 85.0) 36216	(4.62 , 1.06) (N/A , 0.02 , 0.0)	2750.3	N/A 0.0 0.0	0.2128	N/A			
NFDHA	(295.0 / 201.0) 25289 (295.0 / 85.0) 35586	(5.12 , 0.98) (N/A , 0.03 , 0.5)	794423.1 279.0	1.4072 143.7 143.7	0.1763	N/A			
TDCA	(499.0 / 80.0) 102465	(7.76 , 1.00) (N/A , 0.02 , 0.0)	1395.1	N/A 0.0 0.0	0.1231	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 129330	(3.48 , N/A) (N/A , 0.02 , N/A)	1392.9	N/A	1.0609 [1.0000]	106.1% { 108.1% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 197891	(5.20 , N/A) (N/A , 0.03 , N/A)	3507501.1	N/A	0.9757 [1.0000]	97.6% { 100.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 327921	(6.42 , N/A) (N/A , 0.02 , N/A)	3658858.2	N/A	1.0319 [1.0000]	103.2% { 101.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (1)
Acquired: 2023/04/12 - 10:12

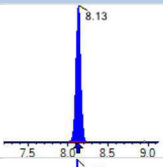
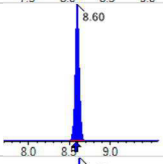
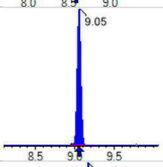
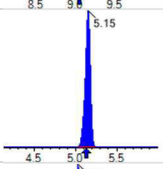
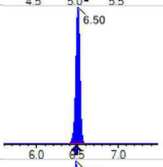
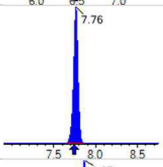
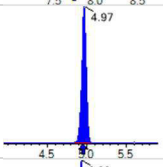
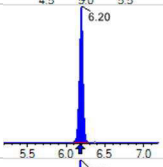
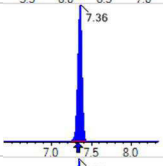
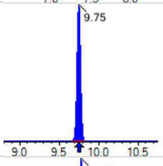
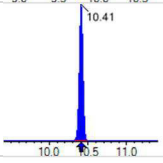
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 304417	(7.03 , N/A) (N/A , 0.01 , N/A)	443217.1	N/A	1.0030 [1.0000]	100.3% { 99.2% }			
13C2_PFDA_IIS	(515.0 / 470.1) 308435	(7.60 , N/A) (N/A , 0.02 , N/A)	1799.9	N/A	0.9506 [1.0000]	95.1% { 100.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 442358	(6.50 , N/A) (N/A , 0.02 , N/A)	11474.6	N/A	0.9877 [1.0000]	98.8% { 107.1% }			
13C4_PFOS_IIS	(503.0 / 79.9) 686288	(7.76 , N/A) (N/A , 0.02 , N/A)	2001.3	N/A	1.0091 [1.0000]	100.9% { 106.1% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1118397	(3.48 , N/A) (N/A , 0.02 , N/A)	6711.6	N/A	8.1562 [8.0000]	102.0% { 107.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 908353	(4.35 , N/A) (N/A , 0.02 , N/A)	3941.0	N/A	4.0979 [4.0000]	102.4% { 101.3% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 581690	(5.20 , N/A) (N/A , 0.03 , N/A)	1492.6	N/A	2.0738 [2.0000]	103.7% { 99.5% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 490950	(5.83 , N/A) (N/A , 0.02 , N/A)	3025.7	N/A	2.0039 [2.0000]	100.2% { 100.2% }			
13C8_PFOA_EIS	(421.0 / 376.0) 625228	(6.42 , N/A) (N/A , 0.02 , N/A)	2840.0	N/A	1.9317 [2.0000]	96.6% { 101.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 275397	(7.03 , N/A) (N/A , 0.02 , N/A)	1328.5	N/A	0.9629 [1.0000]	96.3% { 92.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 345755	(7.60 , N/A) (N/A , 0.02 , N/A)	1898.1	N/A	0.9992 [1.0000]	99.9% { 96.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (1)
Acquired: 2023/04/12 - 10:12

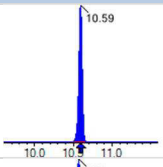
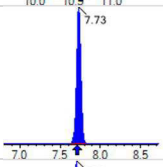
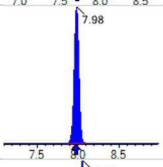
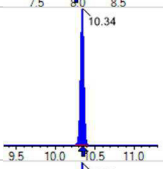
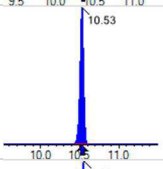
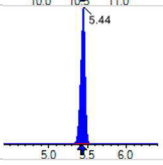
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 341819	(8.13 , N/A) (N/A , 0.01 , N/A)	5128.5	N/A	1.0642 [1.0000]	106.4% { 94.7% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 274024	(8.60 , N/A) (N/A , 0.01 , N/A)	328597.6	N/A	0.9964 [1.0000]	99.6% { 95.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 273452	(9.05 , N/A) (N/A , 0.00 , N/A)	1228.0	N/A	1.0545 [1.0000]	105.4% { 90.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1438119	(5.15 , N/A) (N/A , 0.03 , N/A)	2048.4	N/A	2.0707 [2.0000]	103.5% { 103.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 849949	(6.50 , N/A) (N/A , 0.02 , N/A)	5378.6	N/A	2.0845 [2.0000]	104.2% { 105.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1709096	(7.76 , N/A) (N/A , 0.02 , N/A)	3395.8	N/A	2.0556 [2.0000]	102.8% { 102.6% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 275260	(4.97 , N/A) (N/A , 0.02 , N/A)	1161.3	N/A	4.4006 [4.0000]	110.0% { 110.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 306075	(6.20 , N/A) (N/A , 0.02 , N/A)	2718.4	N/A	4.2873 [4.0000]	107.2% { 104.6% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 395209	(7.36 , N/A) (N/A , 0.02 , N/A)	7602.6	N/A	4.1815 [4.0000]	104.5% { 110.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2696653	(9.75 , N/A) (N/A , 0.00 , N/A)	5446.6	N/A	1.9979 [2.0000]	99.9% { 103.8% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 499488	(10.41 , N/A) (N/A , 0.00 , N/A)	2490.4	N/A	1.7342 [2.0000]	86.7% { 96.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (1)
Acquired: 2023/04/12 - 10:12

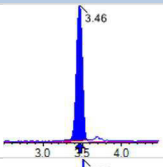
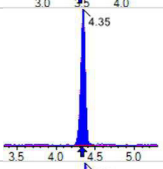
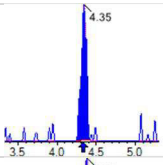
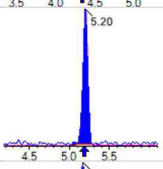
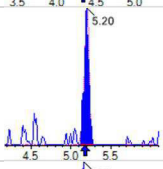
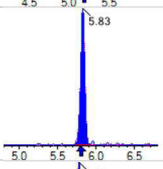
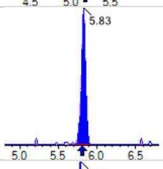
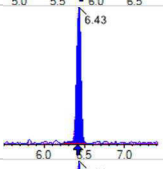
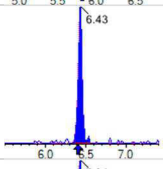
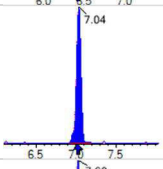
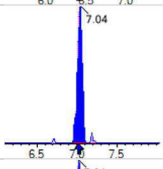
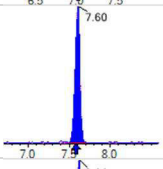
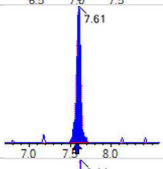
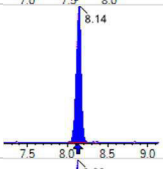
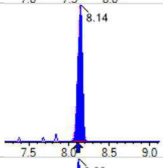
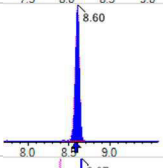
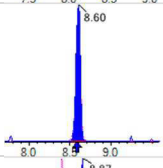
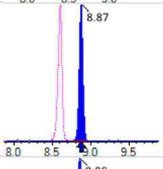
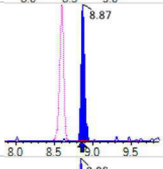
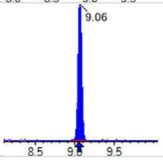
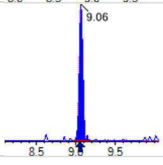
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 458853	(10.59 , N/A) (N/A , 0.00 , N/A)	2753.0	N/A	1.9309 [2.0000]	96.5% { 99.7% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 712577	(7.73 , N/A) (N/A , 0.02 , N/A)	2907.9	N/A	3.9987 [4.0000]	100.0% { 105.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 597748	(7.98 , N/A) (N/A , 0.02 , N/A)	12388.6	N/A	4.0895 [4.0000]	102.2% { 111.3% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1664196	(10.34 , N/A) (N/A , 0.00 , N/A)	1639.0	N/A	17.4042 [20.0000]	87.0% { 87.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2288971	(10.53 , N/A) (N/A , 0.00 , N/A)	1350.5	N/A	18.1116 [20.0000]	90.6% { 90.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1368414	(5.44 , N/A) (N/A , 0.03 , N/A)	2578.2	N/A	8.6479 [8.0000]	108.1% { 106.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (2)
Acquired: 2023/04/12 - 10:25

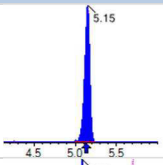
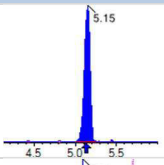
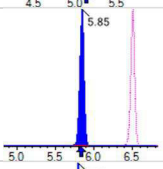
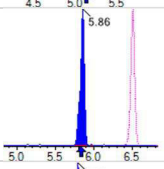
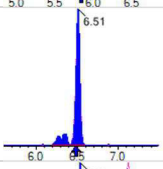
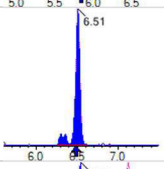
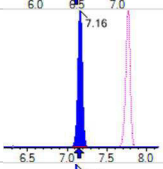
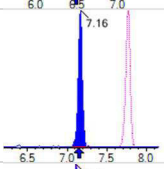
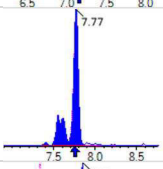
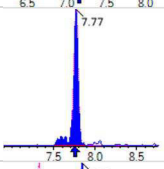
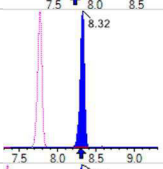
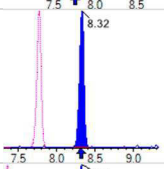
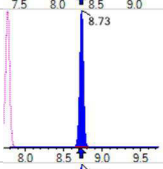
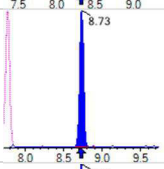
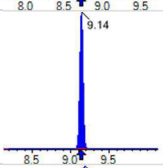
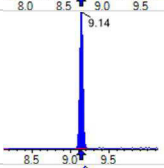
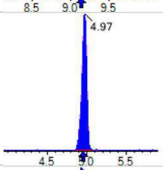
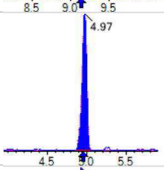
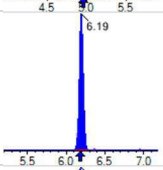
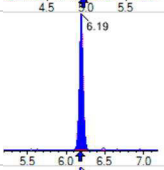
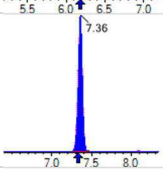
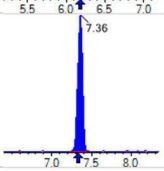
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 238991	(3.46 , 1.00) (0.00 , N/A , 0.0)	113.6	N/A 0.0 0.0	1.9860	N/A			
PFPeA	(263.0 / 219.0) 228762 (263.0 / 69.0) 3637	(4.35 , 1.00) (0.00 , N/A , 0.0)	679.2 84.6	0.0159 121.1 121.1	1.0164	N/A			
PFHxA	(313.0 / 269.0) 160476 (313.0 / 119.0) 15087	(5.20 , 1.00) (0.00 , N/A , 0.1)	240.7 503.6	0.0940 86.1 86.1	0.6008	N/A			
PFHpA	(363.0 / 319.0) 109523 (363.0 / 169.0) 33202	(5.83 , 1.00) (0.00 , N/A , -0.2)	577.5 1401.1	0.3032 99.3 99.3	0.5089	N/A			
PFOA	(413.0 / 369.0) 145930 (413.0 / 169.0) 44177	(6.43 , 1.00) (0.00 , N/A , 0.0)	350.2 1408.0	0.3027 96.7 96.7	0.5146	N/A			
PFNA	(463.0 / 419.0) 131614 (463.0 / 169.0) 30834	(7.04 , 1.00) (0.00 , N/A , -0.2)	34935.3 453625.9	0.2343 109.7 109.7	0.4870	N/A			
PFDA	(513.0 / 469.0) 170874 (513.0 / 169.0) 22910	(7.60 , 1.00) (0.00 , N/A , -0.1)	446.0 581.8	0.1341 117.0 117.0	0.5308	N/A			
PFUnA	(563.0 / 519.0) 151356 (563.0 / 169.0) 18312	(8.14 , 1.00) (0.00 , N/A , -0.1)	773.0 5411.9	0.1210 102.4 102.4	0.5206	N/A			
PFDoA	(613.0 / 569.0) 128856 (613.0 / 169.0) 24489	(8.60 , 1.00) (0.00 , N/A , 0.2)	913.1 8704.2	0.1901 110.9 110.9	0.5048	N/A			
PFTrDA	(663.0 / 619.0) 125766 (663.0 / 169.0) 35979	(8.87 , 1.03) (N/A , 0.01 , 0.0)	801.5 356.9	0.2861 115.4 115.4	0.5408	N/A			
PFTeDA	(713.0 / 669.0) 127757 (713.0 / 169.0) 29595	(9.06 , 1.00) (0.00 , N/A , -0.1)	718.2 229.2	0.2317 115.0 115.0	0.5175	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (2)
Acquired: 2023/04/12 - 10:25

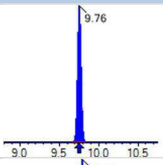
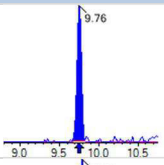
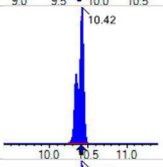
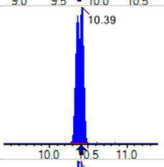
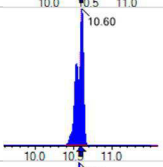
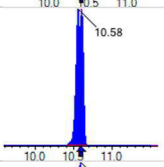
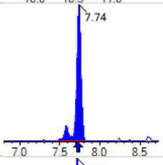
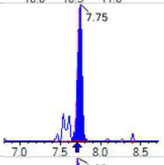
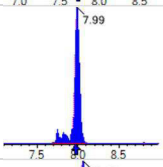
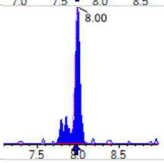
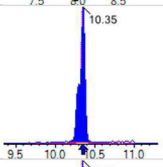
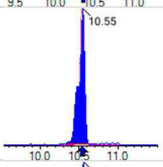
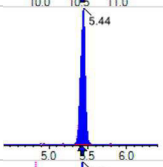
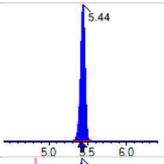
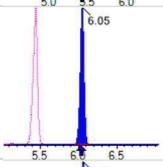
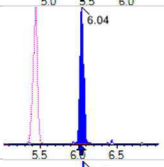
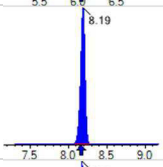
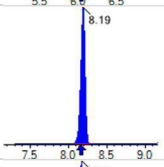
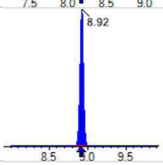
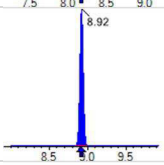
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 234502 (299.0 / 99.0) 141545	(5.15 , 1.00) (0.00 , N/A , 0.0)	618944.4 6243.0	0.6036 93.9 93.9	0.4490	N/A			
PFPeS	(349.0 / 80.0) 367490 (349.0 / 99.0) 116090	(5.85 , 0.90) (N/A , 0.02 , -0.6)	15031.2 258698.7	0.3159 93.2 93.2	0.4971	N/A			
PFHxS	(399.0 / 80.0) 291776 (399.0 / 99.0) 105662	(6.51 , 1.00) (0.00 , N/A , 0.1)	6335647.6 1804.2	0.3621 104.6 104.6	0.4631	N/A			
PFHpS	(449.0 / 80.0) 327457 (449.0 / 99.0) 102856	(7.16 , 0.92) (N/A , 0.02 , -0.1)	9606.6 4560.9	0.3141 113.2 113.2	0.5010	N/A			
PFOS	(499.0 / 80.0) 440225 (499.0 / 99.0) 96380	(7.77 , 1.00) (0.00 , N/A , 0.0)	328.9 488.2	0.2189 97.8 97.8	0.4800	N/A			MI2 DG 2023-04-12
PFNS	(549.0 / 80.0) 411080 (549.0 / 99.0) 116527	(8.32 , 1.07) (N/A , 0.02 , -0.1)	377930.1 3882.5	0.2835 117.1 117.1	0.4796	N/A			
PFDS	(599.0 / 80.0) 495896 (599.0 / 99.0) 110181	(8.73 , 1.12) (N/A , 0.01 , 0.0)	644466.7 4068.7	0.2222 99.2 99.2	0.5118	N/A			
PFDoS	(699.0 / 80.0) 366330 (699.0 / 99.0) 84289	(9.14 , 1.18) (N/A , 0.01 , 0.1)	1586.1 683.1	0.2301 96.1 96.1	0.4915	N/A			
4:2FTS	(327.0 / 307.0) 336203 (327.0 / 81.0) 207246	(4.97 , 1.00) (0.00 , N/A , -0.1)	2731.6 498.2	0.6164 90.7 90.7	1.8669	N/A			
6:2FTS	(427.0 / 407.0) 225058 (427.0 / 81.0) 160604	(6.19 , 1.00) (0.00 , N/A , 0.1)	148926.7 1011.3	0.7136 101.3 101.3	2.0702	N/A			
8:2FTS	(527.0 / 507.0) 238649 (527.0 / 81.0) 144104	(7.36 , 1.00) (0.00 , N/A , 0.0)	2684.0 769.3	0.6038 89.4 89.4	2.2448	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (2)
Acquired: 2023/04/12 - 10:25

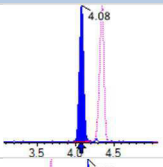
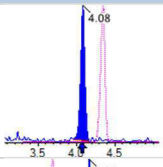
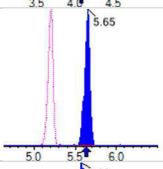
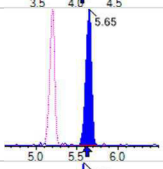
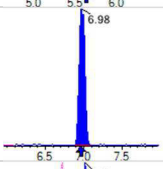
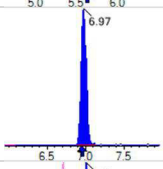
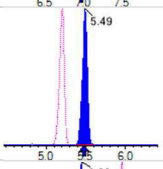
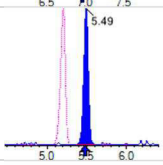
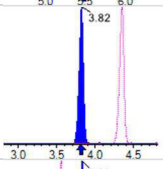
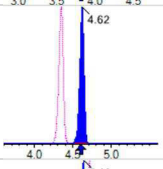
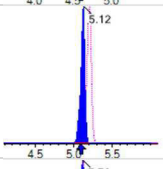
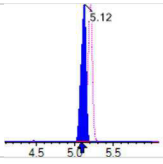
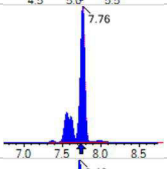
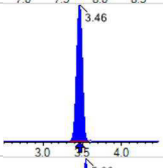
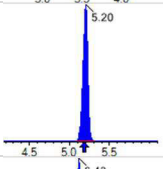
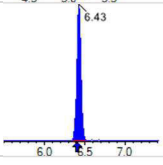
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 612187 (498.0 / 478.0) 14029	(9.76 , 1.00) (0.00 , N/A , 0.0)	2203.4 148.1	0.0229 92.6 92.6	0.5124	N/A			
NMeFOSA	(512.0 / 219.0) 474305 (512.0 / 169.0) 408504	(10.42 , 1.00) (0.00 , N/A , 1.5)	2362.8 1694.6	0.8613 99.3 99.3	2.0875	N/A			
NEtFOSA	(526.0 / 219.0) 490398 (526.0 / 169.0) 602367	(10.60 , 1.00) (0.00 , N/A , 1.1)	2743.3 2214.7	1.2283 98.3 98.3	2.0518	N/A			
NMeFOSAA	(570.0 / 419.0) 81488 (570.0 / 483.0) 27500	(7.74 , 1.00) (0.00 , N/A , -0.5)	116213.1 196.8	0.3375 72.8 72.8	0.5926	N/A			
NEtFOSAA	(584.0 / 419.0) 62099 (584.0 / 526.0) 34414	(7.99 , 1.00) (0.00 , N/A , -0.4)	338.0 440.2	0.5542 90.8 90.8	0.5060	N/A			
NMeFOSE	(616.0 / 59.0) 221629	(10.35 , 1.00) (0.01 , N/A , 0.0)	506.4	N/A 0.0 0.0	2.1130	N/A			
NEtFOSE	(630.0 / 59.0) 247386	(10.55 , 1.00) (0.01 , N/A , 0.0)	422.1	N/A 0.0 0.0	2.0533	N/A			
HFPO-DA	(285.0 / 169.0) 134549 (285.0 / 185.0) 377284	(5.44 , 1.00) (0.00 , N/A , 0.1)	948.5 1729.6	2.8041 107.8 107.8	0.9803	N/A			
ADONA	(377.0 / 85.0) 487582 (377.0 / 251.0) 43518	(6.05 , 1.11) (N/A , 0.02 , 0.4)	1886.3 882.2	0.0893 89.9 89.9	0.9942	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 1433365 (533.0 / 353.0) 429490	(8.19 , 1.51) (N/A , 0.02 , -0.1)	1678.0 1013.1	0.2996 103.2 103.2	0.9708	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 812812 (633.0 / 453.0) 316868	(8.92 , 1.64) (N/A , 0.01 , 0.2)	3296.6 1696.3	0.3898 116.3 116.3	0.9313	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (2)
Acquired: 2023/04/12 - 10:25

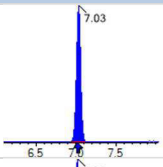
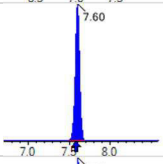
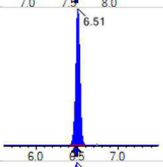
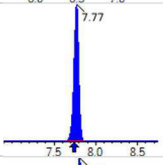
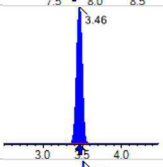
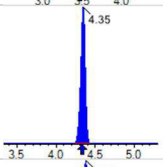
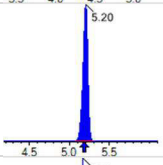
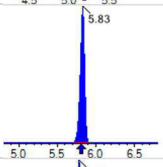
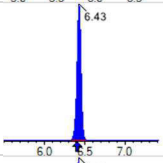
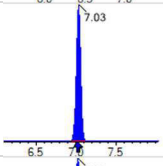
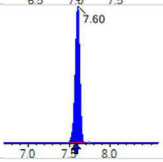
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 14940 (241.0 / 117.0) 28773	(4.08 , 0.94) (N/A , 0.01 , -0.2)	37.5 25.0	1.9259 116.6 116.6	1.8115	N/A			
5:3FTCA	(341.0 / 236.7) 72567 (341.0 / 217.0) 156422	(5.65 , 1.09) (N/A , 0.02 , 0.1)	3146.5 343.6	2.1556 137.4 137.4	1.7285	N/A			
7:3FTCA	(441.0 / 317.0) 151337 (441.0 / 337.0) 130877	(6.98 , 1.34) (N/A , 0.02 , 0.2)	539.9 899.0	0.8648 100.4 100.4	2.0585	N/A			
PFEESA	(315.0 / 135.0) 315371 (315.0 / 83.0) 77936	(5.49 , 1.06) (N/A , 0.02 , 0.0)	32253.3 340.1	0.2471 101.3 101.3	0.9386	N/A			
PFMPA	(229.0 / 85.0) 50789	(3.82 , 0.88) (N/A , 0.01 , 0.0)	1598.5	N/A 0.0 0.0	1.0597	N/A			
PFMBA	(279.0 / 85.0) 173936	(4.62 , 1.06) (N/A , 0.02 , 0.0)	2264.5	N/A 0.0 0.0	0.9911	N/A			
NFDHA	(295.0 / 201.0) 168592 (295.0 / 85.0) 145805	(5.12 , 0.98) (N/A , 0.03 , 0.1)	4849.2 2246.7	0.8648 88.3 88.3	1.2348	N/A			
TDCA	(499.0 / 80.0) 415353	(7.76 , 1.00) (N/A , 0.02 , 0.0)	5139.1	N/A 0.0 0.0	0.5261	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 124269	(3.46 , N/A) (N/A , 0.00 , N/A)	1425.8	N/A	1.0194 [1.0000]	101.9% { 103.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 194247	(5.20 , N/A) (N/A , 0.03 , N/A)	2390.4	N/A	0.9577 [1.0000]	95.8% { 98.7% }			
13C4_PFOA_IIS	(417.0 / 372.0) 279927	(6.43 , N/A) (N/A , 0.02 , N/A)	3419.1	N/A	0.8809 [1.0000]	88.1% { 86.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (2)
Acquired: 2023/04/12 - 10:25

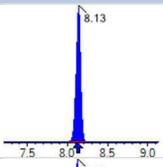
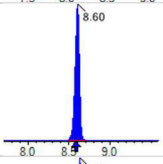
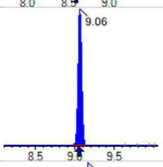
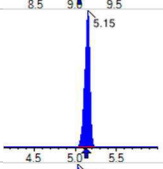
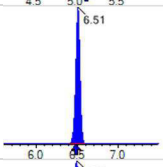
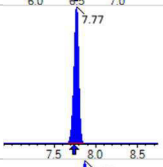
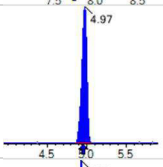
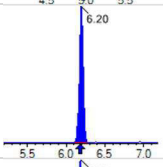
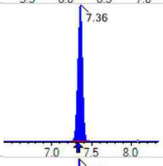
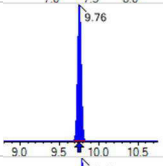
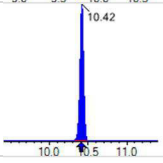
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 283905	(7.03 , N/A) (N/A , 0.02 , N/A)	2521.6	N/A	0.9354 [1.0000]	93.5% { 92.5% }			
13C2_PFDA_IIS	(515.0 / 470.1) 317674	(7.60 , N/A) (N/A , 0.02 , N/A)	2580.6	N/A	0.9791 [1.0000]	97.9% { 103.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 423531	(6.51 , N/A) (N/A , 0.02 , N/A)	2100.3	N/A	0.9457 [1.0000]	94.6% { 102.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 657497	(7.77 , N/A) (N/A , 0.03 , N/A)	2702.0	N/A	0.9668 [1.0000]	96.7% { 101.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1101719	(3.46 , N/A) (N/A , 0.00 , N/A)	5080.2	N/A	8.3618 [8.0000]	104.5% { 105.4% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 936811	(4.35 , N/A) (N/A , 0.01 , N/A)	2920.1	N/A	4.3056 [4.0000]	107.6% { 104.4% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 553795	(5.20 , N/A) (N/A , 0.03 , N/A)	1586.5	N/A	2.0114 [2.0000]	100.6% { 94.7% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 499353	(5.83 , N/A) (N/A , 0.02 , N/A)	1449.0	N/A	2.0764 [2.0000]	103.8% { 101.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 601529	(6.43 , N/A) (N/A , 0.02 , N/A)	10428.4	N/A	2.1772 [2.0000]	108.9% { 97.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 292999	(7.03 , N/A) (N/A , 0.02 , N/A)	449.8	N/A	1.0985 [1.0000]	109.8% { 97.9% }			
13C6_PFDA_EIS	(519.0 / 474.0) 342508	(7.60 , N/A) (N/A , 0.02 , N/A)	49351.4	N/A	0.9611 [1.0000]	96.1% { 95.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (2)
Acquired: 2023/04/12 - 10:25

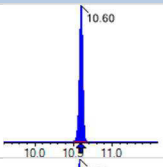
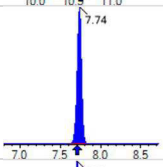
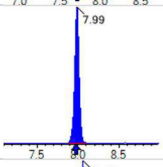
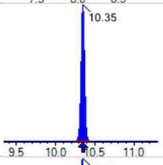
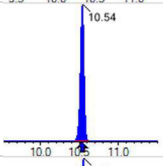
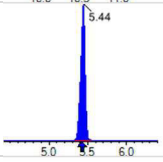
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 330428	(8.13 , N/A) (N/A , 0.02 , N/A)	8072.6	N/A	0.9988 [1.0000]	99.9% { 91.6% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 281445	(8.60 , N/A) (N/A , 0.01 , N/A)	1502.5	N/A	0.9936 [1.0000]	99.4% { 98.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 269350	(9.06 , N/A) (N/A , 0.01 , N/A)	1231.3	N/A	1.0084 [1.0000]	100.8% { 89.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1464510	(5.15 , N/A) (N/A , 0.03 , N/A)	3563.1	N/A	2.2025 [2.0000]	110.1% { 105.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 801395	(6.51 , N/A) (N/A , 0.02 , N/A)	2077.4	N/A	2.0528 [2.0000]	102.6% { 99.4% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1621026	(7.77 , N/A) (N/A , 0.02 , N/A)	2035.0	N/A	2.0350 [2.0000]	101.8% { 97.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 242584	(4.97 , N/A) (N/A , 0.02 , N/A)	1175.1	N/A	4.0506 [4.0000]	101.3% { 97.3% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 254104	(6.20 , N/A) (N/A , 0.02 , N/A)	2880.8	N/A	3.7175 [4.0000]	92.9% { 86.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 301405	(7.36 , N/A) (N/A , 0.03 , N/A)	2307.0	N/A	3.3307 [4.0000]	83.3% { 84.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2726947	(9.76 , N/A) (N/A , 0.01 , N/A)	5323.7	N/A	2.1088 [2.0000]	105.4% { 104.9% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 547663	(10.42 , N/A) (N/A , 0.01 , N/A)	2261.3	N/A	1.9847 [2.0000]	99.2% { 105.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (2)
Acquired: 2023/04/12 - 10:25

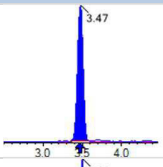
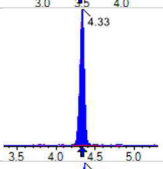
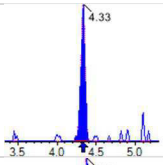
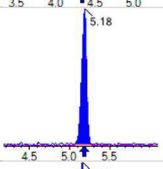
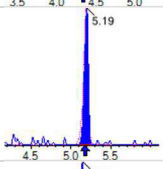
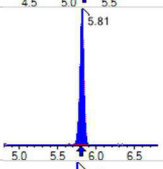
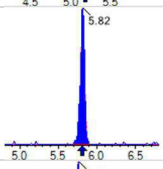
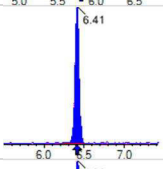
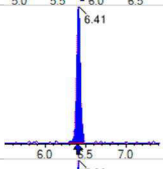
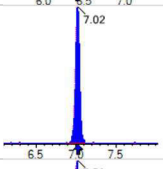
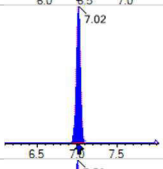
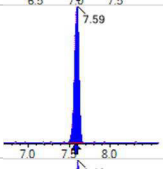
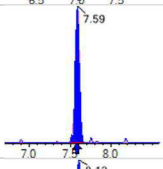
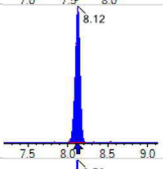
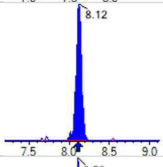
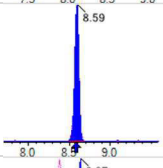
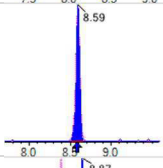
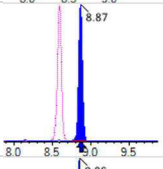
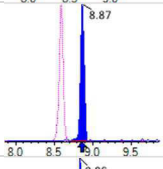
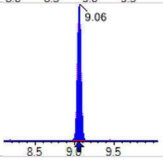
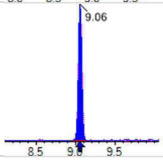
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 455024	(10.60 , N/A) (N/A , 0.01 , N/A)	2794.9	N/A	1.9986 [2.0000]	99.9% { 98.9% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 647108	(7.74 , N/A) (N/A , 0.02 , N/A)	2306.1	N/A	3.7903 [4.0000]	94.8% { 96.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 554990	(7.99 , N/A) (N/A , 0.02 , N/A)	8459.8	N/A	3.9632 [4.0000]	99.1% { 103.4% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1921402	(10.35 , N/A) (N/A , 0.01 , N/A)	1739.3	N/A	20.9739 [20.0000]	104.9% { 100.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2446736	(10.54 , N/A) (N/A , 0.01 , N/A)	1430.3	N/A	20.2077 [20.0000]	101.0% { 97.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1300215	(5.44 , N/A) (N/A , 0.03 , N/A)	1768.8	N/A	8.3710 [8.0000]	104.6% { 100.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (3)
Acquired: 2023/04/12 - 10:38

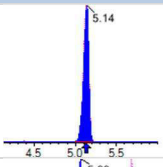
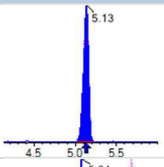
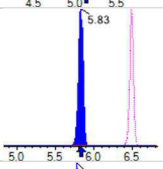
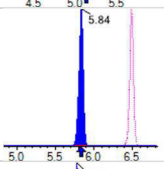
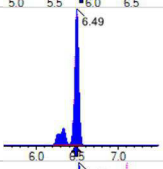
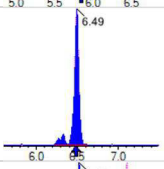
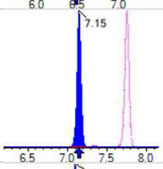
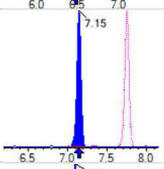
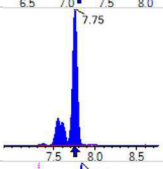
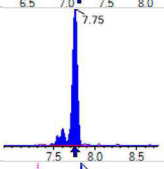
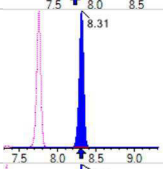
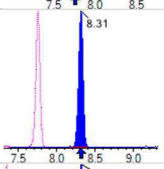
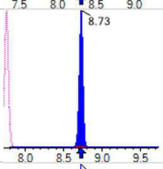
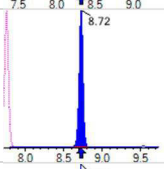
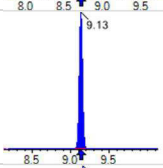
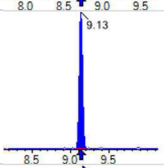
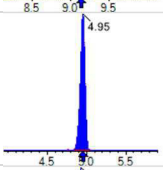
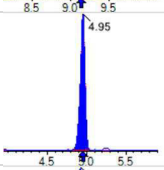
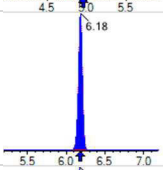
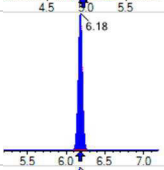
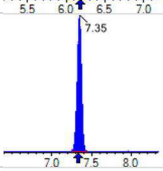
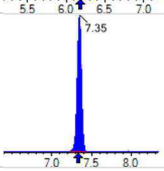
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 480319	(3.47 , 1.00) (0.00 , N/A , 0.0)	176.1	N/A 0.0 0.0	3.8219	N/A			
PFPeA	(263.0 / 219.0) 450291 (263.0 / 69.0) 3790	(4.33 , 1.00) (0.00 , N/A , 0.1)	1051.6 113.0	0.0084 64.1 64.1	1.9506	N/A			
PFHxA	(313.0 / 269.0) 294011 (313.0 / 119.0) 22148	(5.18 , 1.00) (0.00 , N/A , -0.7)	392.7 667.8	0.0753 69.0 69.0	1.0103	N/A			
PFHpA	(363.0 / 319.0) 236373 (363.0 / 169.0) 74851	(5.81 , 1.00) (0.00 , N/A , -0.2)	6343.1 112973.7	0.3167 103.7 103.7	1.0407	N/A			
PFOA	(413.0 / 369.0) 310116 (413.0 / 169.0) 98577	(6.41 , 1.00) (0.00 , N/A , -0.1)	652.4 1285.3	0.3179 101.5 101.5	0.9928	N/A			
PFNA	(463.0 / 419.0) 254158 (463.0 / 169.0) 56250	(7.02 , 1.00) (0.00 , N/A , 0.1)	8571.6 6851.4	0.2213 103.6 103.6	0.9427	N/A			
PFDA	(513.0 / 469.0) 335920 (513.0 / 169.0) 40459	(7.59 , 1.00) (0.00 , N/A , 0.5)	626.4 766.2	0.1204 105.1 105.1	0.9522	N/A			
PFUnA	(563.0 / 519.0) 291004 (563.0 / 169.0) 37661	(8.12 , 1.00) (0.00 , N/A , 0.1)	1093.3 620.3	0.1294 109.5 109.5	0.9676	N/A			
PFDoA	(613.0 / 569.0) 273984 (613.0 / 169.0) 43856	(8.59 , 1.00) (0.00 , N/A , -0.1)	986.9 2317.6	0.1601 93.4 93.4	1.0244	N/A			
PFTrDA	(663.0 / 619.0) 241450 (663.0 / 169.0) 58668	(8.87 , 1.03) (N/A , 0.00 , -0.1)	1129.4 517.9	0.2430 98.1 98.1	0.9908	N/A			
PFTeDA	(713.0 / 669.0) 250832 (713.0 / 169.0) 47487	(9.06 , 1.00) (0.00 , N/A , 0.1)	1082.7 547.5	0.1893 93.9 93.9	0.9446	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (3)
Acquired: 2023/04/12 - 10:38

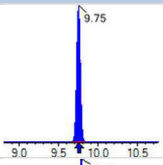
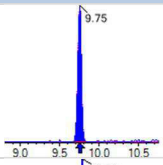
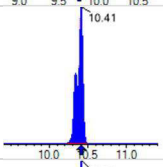
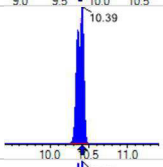
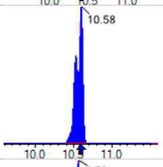
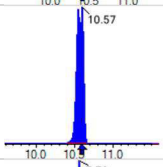
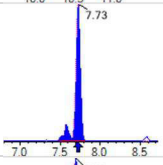
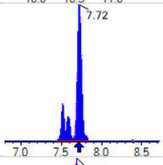
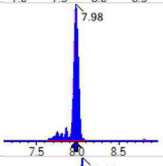
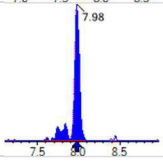
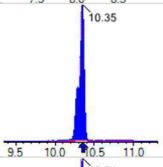
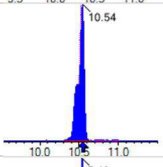
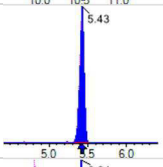
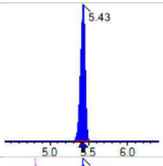
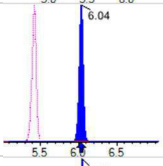
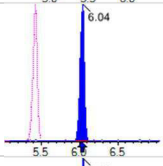
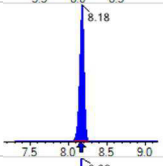
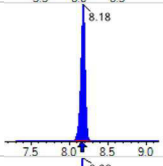
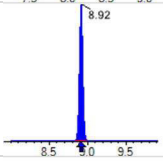
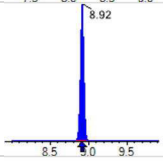
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 448553 (299.0 / 99.0) 301574	(5.14 , 1.00) (0.00 , N/A , 0.1)	81067.6 3034.3	0.6723 104.6 104.6	0.8700	N/A			
PFPeS	(349.0 / 80.0) 679523 (349.0 / 99.0) 256783	(5.83 , 0.90) (N/A , 0.01 , -0.3)	3511.6 32600.6	0.3779 111.4 111.4	0.9073	N/A			
PFHxS	(399.0 / 80.0) 588625 (399.0 / 99.0) 193946	(6.49 , 1.00) (0.00 , N/A , 0.1)	72352.0 2041.9	0.3295 95.1 95.1	0.9223	N/A			
PFHpS	(449.0 / 80.0) 643471 (449.0 / 99.0) 183274	(7.15 , 0.92) (N/A , 0.01 , 0.0)	17266.4 8542.7	0.2848 102.7 102.7	0.9473	N/A			
PFOS	(499.0 / 80.0) 912790 (499.0 / 99.0) 199995	(7.75 , 1.00) (0.00 , N/A , 0.0)	1440.4 568.8	0.2191 97.9 97.9	0.9575	N/A			MI2 DG 2023-04-12
PFNS	(549.0 / 80.0) 856560 (549.0 / 99.0) 205485	(8.31 , 1.07) (N/A , 0.01 , -0.1)	22165434.3 4188.0	0.2399 99.1 99.1	0.9615	N/A			
PFDS	(599.0 / 80.0) 964845 (599.0 / 99.0) 219520	(8.73 , 1.13) (N/A , 0.01 , 0.0)	4084.8 11730.4	0.2275 101.5 101.5	0.9580	N/A			
PFDoS	(699.0 / 80.0) 787486 (699.0 / 99.0) 168891	(9.13 , 1.18) (N/A , 0.00 , 0.0)	2648.9 855.8	0.2145 89.6 89.6	1.0165	N/A			
4:2FTS	(327.0 / 307.0) 758892 (327.0 / 81.0) 473280	(4.95 , 1.00) (0.00 , N/A , 0.0)	2392.2 686.1	0.6236 91.7 91.7	3.8695	N/A			
6:2FTS	(427.0 / 407.0) 480993 (427.0 / 81.0) 306371	(6.18 , 1.00) (0.00 , N/A , 0.1)	3380.9 2047.6	0.6370 90.4 90.4	3.7860	N/A			
8:2FTS	(527.0 / 507.0) 489400 (527.0 / 81.0) 362132	(7.35 , 1.00) (0.00 , N/A , 0.1)	2121.3 1510.8	0.7400 109.5 109.5	3.9537	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (3)
Acquired: 2023/04/12 - 10:38

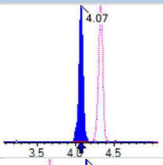
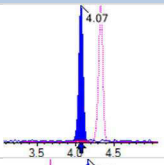
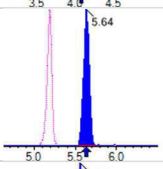
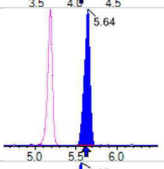
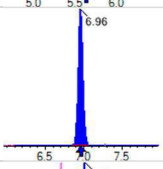
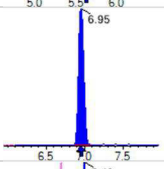
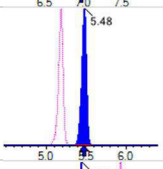
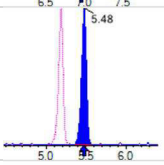
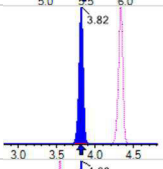
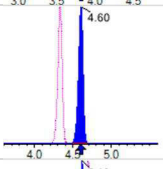
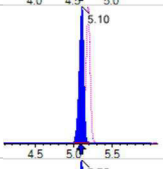
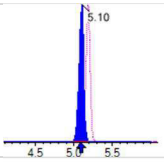
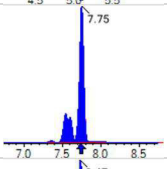
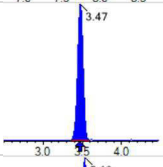
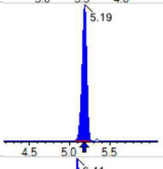
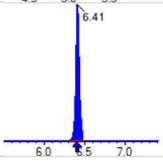
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 1251068 (498.0 / 478.0) 30835	(9.75 , 1.00) (0.00 , N/A , -0.2)	3041.5 315.2	0.0246 99.5 99.5	0.9986	N/A			
NMeFOSA	(512.0 / 219.0) 969905 (512.0 / 169.0) 871766	(10.41 , 1.00) (0.00 , N/A , 1.2)	2833.5 2939.0	0.8988 103.6 103.6	3.9788	N/A			
NEtFOSA	(526.0 / 219.0) 1037211 (526.0 / 169.0) 1281698	(10.58 , 1.00) (-0.01 , N/A , 0.8)	3576.3 2426.1	1.2357 98.8 98.8	3.9057	N/A			
NMeFOSAA	(570.0 / 419.0) 157034 (570.0 / 483.0) 74675	(7.73 , 1.00) (0.00 , N/A , 0.2)	6623.1 275.0	0.4755 102.7 102.7	0.9200	N/A			
NEtFOSAA	(584.0 / 419.0) 129346 (584.0 / 526.0) 87052	(7.98 , 1.00) (0.01 , N/A , 0.0)	222.5 2988.3	0.6730 110.2 110.2	0.9776	N/A			
NMeFOSE	(616.0 / 59.0) 434620	(10.35 , 1.00) (0.01 , N/A , 0.0)	831.6	N/A 0.0 0.0	3.7266	N/A			
NEtFOSE	(630.0 / 59.0) 528485	(10.54 , 1.00) (0.01 , N/A , 0.0)	566.1	N/A 0.0 0.0	3.8516	N/A			
HFPO-DA	(285.0 / 169.0) 271190 (285.0 / 185.0) 750974	(5.43 , 1.00) (0.00 , N/A , 0.1)	1918.3 2061.5	2.7692 106.4 106.4	1.9169	N/A			
ADONA	(377.0 / 85.0) 980338 (377.0 / 251.0) 94489	(6.04 , 1.11) (N/A , 0.01 , 0.0)	2956.3 690.5	0.0964 97.1 97.1	1.9395	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 2901257 (533.0 / 353.0) 849857	(8.18 , 1.51) (N/A , 0.01 , -0.1)	4146.8 1496.2	0.2929 100.9 100.9	1.9064	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 1788639 (633.0 / 453.0) 605395	(8.92 , 1.64) (N/A , 0.00 , 0.0)	4105.3 1986.2	0.3385 101.0 101.0	1.9884	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (3)
Acquired: 2023/04/12 - 10:38

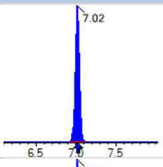
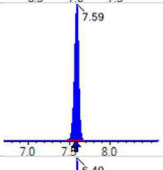
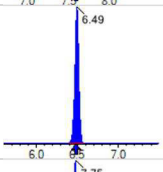
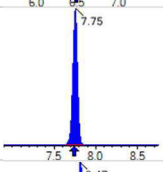
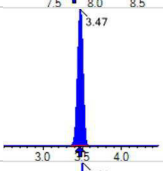
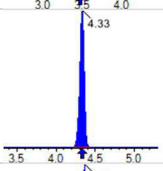
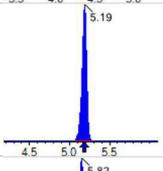
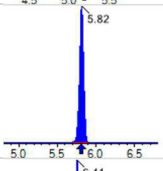
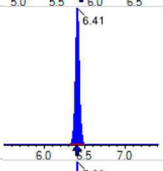
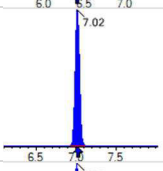
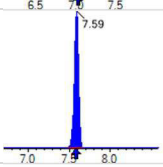
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 31923 (241.0 / 117.0) 57777	(4.07 , 0.94) (N/A , 0.01 , 0.1)	45.4 33.9	1.8099 109.6 109.6	3.7739	N/A			
5:3FTCA	(341.0 / 236.7) 168805 (341.0 / 217.0) 314305	(5.64 , 1.09) (N/A , 0.01 , -0.4)	876.2 627.2	1.8619 118.7 118.7	3.6906	N/A			
7:3FTCA	(441.0 / 317.0) 301119 (441.0 / 337.0) 237525	(6.96 , 1.34) (N/A , 0.00 , 0.2)	1111.9 1271.2	0.7888 91.6 91.6	3.7594	N/A			
PFEESA	(315.0 / 135.0) 622221 (315.0 / 83.0) 159758	(5.48 , 1.06) (N/A , 0.01 , 0.1)	2099.5 574.9	0.2568 105.2 105.2	1.6997	N/A			
PFMPA	(229.0 / 85.0) 95939	(3.82 , 0.88) (N/A , 0.01 , 0.0)	2123.3	N/A 0.0 0.0	1.9516	N/A			
PFMBA	(279.0 / 85.0) 342790	(4.60 , 1.06) (N/A , 0.00 , 0.0)	1773.2	N/A 0.0 0.0	1.9044	N/A			
NFDHA	(295.0 / 201.0) 295082 (295.0 / 85.0) 299968	(5.10 , 0.98) (N/A , 0.01 , 0.1)	28101.8 2129.4	1.0166 103.8 103.8	1.9837	N/A			
TDCA	(499.0 / 80.0) 826892	(7.75 , 1.00) (N/A , 0.01 , 0.0)	9118.0	N/A 0.0 0.0	1.0078	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 130016	(3.47 , N/A) (N/A , 0.01 , N/A)	1580.3	N/A	1.0665 [1.0000]	106.7% { 108.6% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 198753	(5.19 , N/A) (N/A , 0.01 , N/A)	2613.8	N/A	0.9799 [1.0000]	98.0% { 101.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 327717	(6.41 , N/A) (N/A , 0.01 , N/A)	2974.1	N/A	1.0312 [1.0000]	103.1% { 101.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (3)
Acquired: 2023/04/12 - 10:38

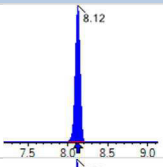
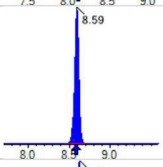
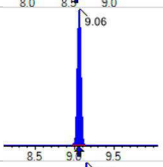
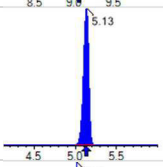
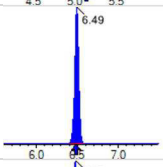
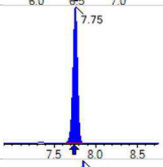
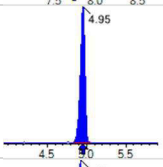
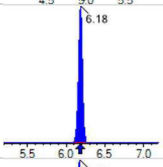
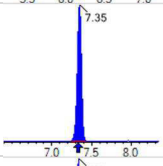
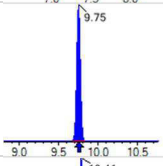
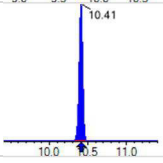
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 306882	(7.02 , N/A) (N/A , 0.00 , N/A)	1860.1	N/A	1.0111 [1.0000]	101.1% { 100.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 318091	(7.59 , N/A) (N/A , 0.01 , N/A)	3767083.7	N/A	0.9803 [1.0000]	98.0% { 103.9% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 480849	(6.49 , N/A) (N/A , 0.01 , N/A)	9017932.0	N/A	1.0737 [1.0000]	107.4% { 116.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 697914	(7.75 , N/A) (N/A , 0.01 , N/A)	1917.1	N/A	1.0262 [1.0000]	102.6% { 107.9% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1150572	(3.47 , N/A) (N/A , 0.02 , N/A)	5792.9	N/A	8.3466 [8.0000]	104.3% { 110.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 960849	(4.33 , N/A) (N/A , 0.00 , N/A)	3282.8	N/A	4.3160 [4.0000]	107.9% { 107.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 603352	(5.19 , N/A) (N/A , 0.01 , N/A)	2581.2	N/A	2.1417 [2.0000]	107.1% { 103.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 526960	(5.82 , N/A) (N/A , 0.01 , N/A)	4838.0	N/A	2.1415 [2.0000]	107.1% { 107.5% }			
13C8_PFOA_EIS	(421.0 / 376.0) 662589	(6.41 , N/A) (N/A , 0.01 , N/A)	3543.7	N/A	2.0484 [2.0000]	102.4% { 107.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 292291	(7.02 , N/A) (N/A , 0.00 , N/A)	448.0	N/A	1.0138 [1.0000]	101.4% { 97.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 375309	(7.59 , N/A) (N/A , 0.01 , N/A)	24044.0	N/A	1.0517 [1.0000]	105.2% { 104.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (3)
Acquired: 2023/04/12 - 10:38

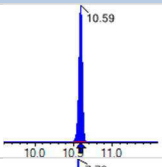
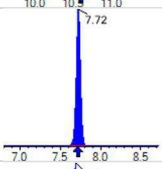
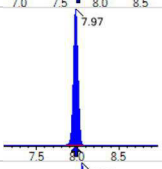
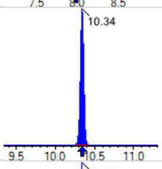
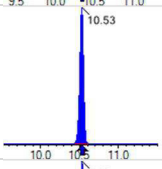
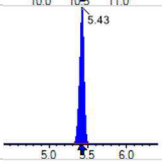
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 341831	(8.12 , N/A) (N/A , 0.01 , N/A)	2432.3	N/A	1.0319 [1.0000]	103.2% { 94.8% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 294904	(8.59 , N/A) (N/A , 0.01 , N/A)	3153.6	N/A	1.0398 [1.0000]	104.0% { 102.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 289735	(9.06 , N/A) (N/A , 0.00 , N/A)	1394.5	N/A	1.0833 [1.0000]	108.3% { 96.1% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1445679	(5.13 , N/A) (N/A , 0.01 , N/A)	2767.0	N/A	1.9150 [2.0000]	95.8% { 103.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 811860	(6.49 , N/A) (N/A , 0.01 , N/A)	2345.4	N/A	1.8317 [2.0000]	91.6% { 100.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1684833	(7.75 , N/A) (N/A , 0.01 , N/A)	2311.1	N/A	1.9926 [2.0000]	99.6% { 101.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 264182	(4.95 , N/A) (N/A , 0.01 , N/A)	855.3	N/A	3.8854 [4.0000]	97.1% { 106.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 296953	(6.18 , N/A) (N/A , 0.01 , N/A)	3922.9	N/A	3.8265 [4.0000]	95.7% { 101.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 350936	(7.35 , N/A) (N/A , 0.01 , N/A)	1589.0	N/A	3.4158 [4.0000]	85.4% { 97.8% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2859807	(9.75 , N/A) (N/A , 0.00 , N/A)	3532.2	N/A	2.0835 [2.0000]	104.2% { 110.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 587586	(10.41 , N/A) (N/A , 0.00 , N/A)	2104.6	N/A	2.0061 [2.0000]	100.3% { 113.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (3)
Acquired: 2023/04/12 - 10:38

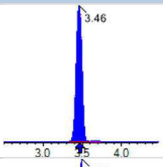
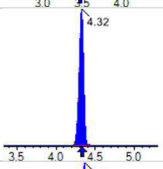
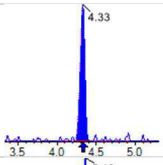
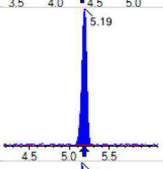
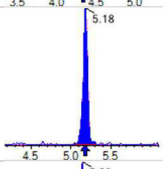
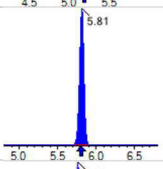
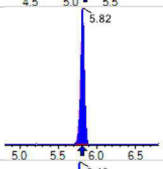
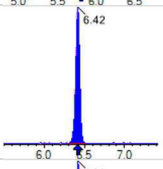
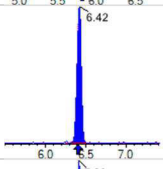
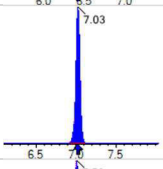
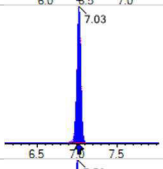
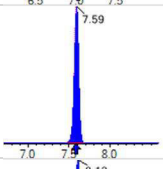
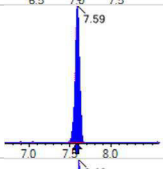
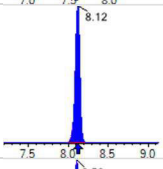
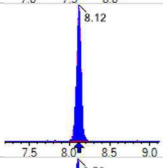
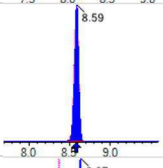
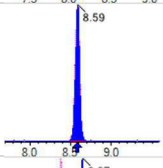
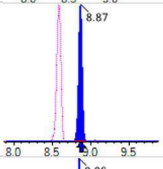
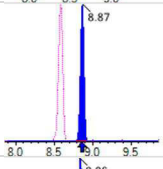
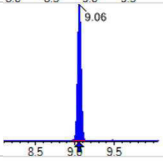
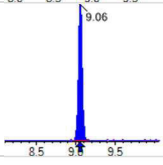
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 505573	(10.59 , N/A) (N/A , 0.00 , N/A)	2773.0	N/A	2.0920 [2.0000]	104.6% { 109.9% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 803262	(7.72 , N/A) (N/A , 0.01 , N/A)	1746.8	N/A	4.4325 [4.0000]	110.8% { 119.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 598291	(7.97 , N/A) (N/A , 0.01 , N/A)	3868.6	N/A	4.0250 [4.0000]	100.6% { 111.4% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2136456	(10.34 , N/A) (N/A , 0.00 , N/A)	1870.1	N/A	21.9709 [20.0000]	109.9% { 111.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2786559	(10.53 , N/A) (N/A , 0.00 , N/A)	2233.7	N/A	21.6815 [20.0000]	108.4% { 110.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1340152	(5.43 , N/A) (N/A , 0.01 , N/A)	3091.9	N/A	8.4325 [8.0000]	105.4% { 103.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (4)
Acquired: 2023/04/12 - 10:51

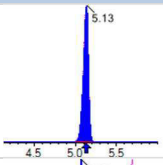
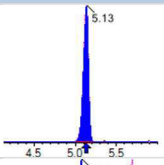
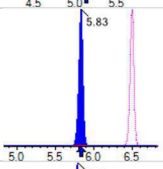
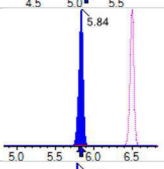
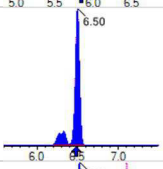
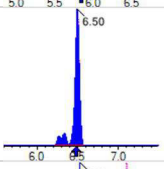
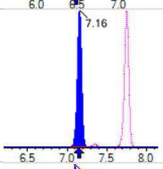
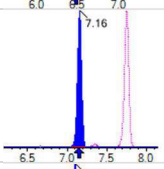
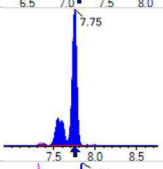
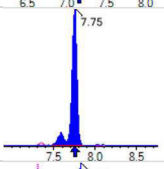
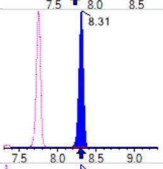
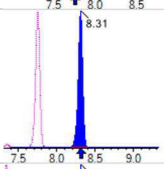
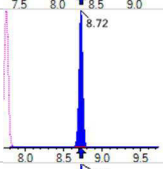
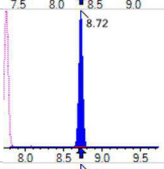
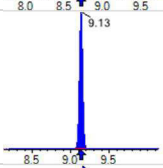
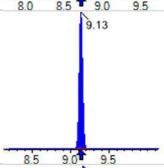
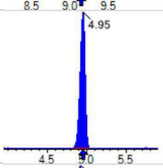
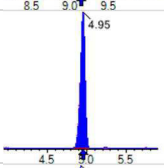
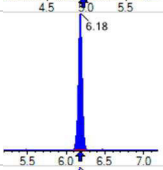
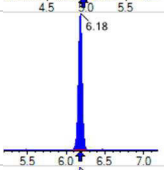
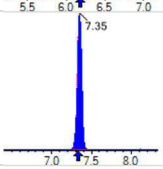
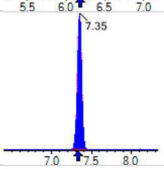
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 997877	(3.46 , 1.00) (0.00 , N/A , 0.0)	182.7	N/A 0.0 0.0	8.1524	N/A			
PFPeA	(263.0 / 219.0) 864013 (263.0 / 69.0) 9910	(4.32 , 1.00) (0.00 , N/A , -0.2)	1868.4 146.8	0.0115 87.4 87.4	3.8766	N/A			
PFHxA	(313.0 / 269.0) 567697 (313.0 / 119.0) 61210	(5.19 , 1.00) (0.00 , N/A , 0.2)	578.3 879.4	0.1078 98.8 98.8	1.9924	N/A			
PFHpA	(363.0 / 319.0) 472790 (363.0 / 169.0) 148024	(5.81 , 1.00) (0.00 , N/A , -0.1)	4074.7 412835.6	0.3131 102.6 102.6	1.9964	N/A			
PFOA	(413.0 / 369.0) 602693 (413.0 / 169.0) 197268	(6.42 , 1.00) (0.00 , N/A , 0.0)	1085.8 1964.9	0.3273 104.6 104.6	1.9825	N/A			
PFNA	(463.0 / 419.0) 527908 (463.0 / 169.0) 124350	(7.03 , 1.00) (0.00 , N/A , 0.0)	60837.2 23365.6	0.2356 110.3 110.3	1.8404	N/A			
PFDA	(513.0 / 469.0) 700250 (513.0 / 169.0) 80392	(7.59 , 1.00) (0.00 , N/A , 0.1)	1970.5 16966.8	0.1148 100.1 100.1	2.0229	N/A			
PFUnA	(563.0 / 519.0) 592418 (563.0 / 169.0) 79922	(8.12 , 1.00) (0.00 , N/A , 0.0)	1635.0 5129.1	0.1349 114.2 114.2	1.8896	N/A			
PFDoA	(613.0 / 569.0) 505208 (613.0 / 169.0) 85032	(8.59 , 1.00) (0.00 , N/A , 0.0)	1964.1 1478.9	0.1683 98.2 98.2	2.0049	N/A			
PFTrDA	(663.0 / 619.0) 482184 (663.0 / 169.0) 119611	(8.87 , 1.03) (N/A , 0.00 , -0.1)	1491.0 1365.0	0.2481 100.1 100.1	2.1002	N/A			
PFTeDA	(713.0 / 669.0) 499584 (713.0 / 169.0) 111294	(9.06 , 1.00) (0.00 , N/A , 0.0)	2100.8 795.1	0.2228 110.5 110.5	2.1909	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (4)
Acquired: 2023/04/12 - 10:51

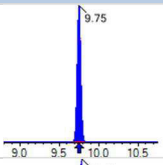
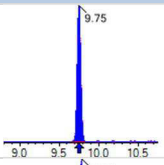
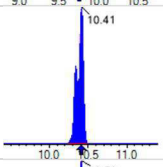
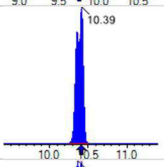
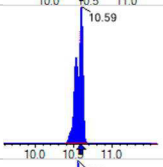
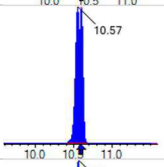
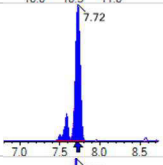
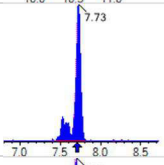
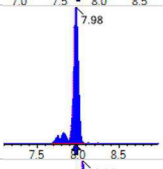
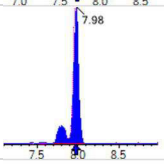
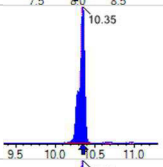
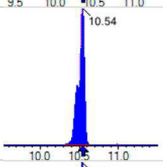
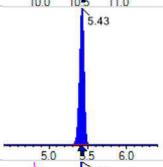
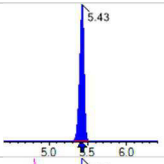
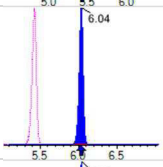
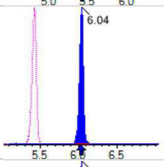
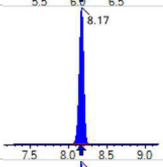
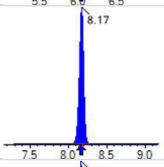
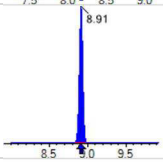
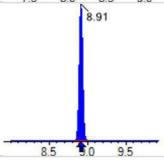
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 932707 (299.0 / 99.0) 562051	(5.13 , 1.00) (0.00 , N/A , 0.0)	71749.2 4807.5	0.6026 93.7 93.7	1.8264	N/A			
PFPeS	(349.0 / 80.0) 1558755 (349.0 / 99.0) 554754	(5.83 , 0.90) (N/A , 0.01 , -0.2)	11930.6 13158.4	0.3559 105.0 105.0	2.0087	N/A			
PFHxS	(399.0 / 80.0) 1171123 (399.0 / 99.0) 431115	(6.50 , 1.00) (0.00 , N/A , 0.1)	14545.1 2753.5	0.3681 106.3 106.3	1.7711	N/A			
PFHpS	(449.0 / 80.0) 1346095 (449.0 / 99.0) 394836	(7.16 , 0.92) (N/A , 0.02 , 0.0)	6876.0 12509643.2	0.2933 105.7 105.7	2.0015	N/A			
PFOS	(499.0 / 80.0) 1681429 (499.0 / 99.0) 393530	(7.75 , 1.00) (0.00 , N/A , 0.1)	789.7 947.5	0.2340 104.6 104.6	1.7814	N/A			
PFNS	(549.0 / 80.0) 1778208 (549.0 / 99.0) 409370	(8.31 , 1.07) (N/A , 0.00 , 0.0)	40208.8 3515.8	0.2302 95.1 95.1	2.0160	N/A			
PFDS	(599.0 / 80.0) 1986445 (599.0 / 99.0) 449452	(8.72 , 1.13) (N/A , 0.00 , 0.1)	9052.7 4035.4	0.2263 101.0 101.0	1.9922	N/A			
PFDoS	(699.0 / 80.0) 1447002 (699.0 / 99.0) 345295	(9.13 , 1.18) (N/A , 0.01 , 0.1)	2911.3 1732.6	0.2386 99.7 99.7	1.8865	N/A			
4:2FTS	(327.0 / 307.0) 1324214 (327.0 / 81.0) 866351	(4.95 , 1.00) (0.00 , N/A , -0.1)	3650.7 1270.7	0.6542 96.2 96.2	7.9132	N/A			
6:2FTS	(427.0 / 407.0) 868898 (427.0 / 81.0) 587639	(6.18 , 1.00) (0.00 , N/A , 0.0)	3108.9 1828.9	0.6763 96.0 96.0	7.7788	N/A			
8:2FTS	(527.0 / 507.0) 991356 (527.0 / 81.0) 745638	(7.35 , 1.00) (0.00 , N/A , 0.0)	4740.7 2261.1	0.7521 111.3 111.3	7.3586	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (4)
Acquired: 2023/04/12 - 10:51

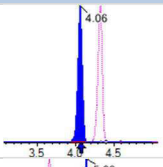
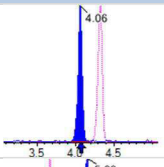
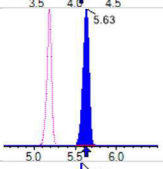
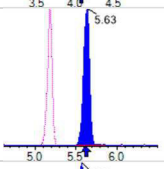
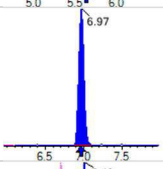
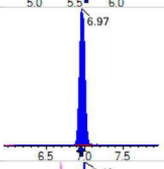
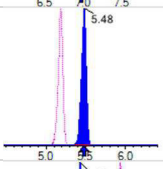
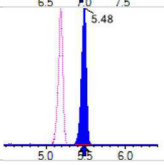
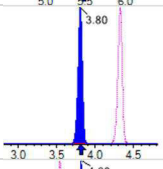
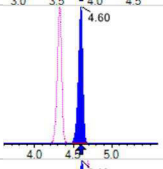
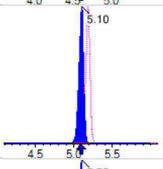
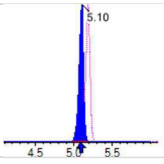
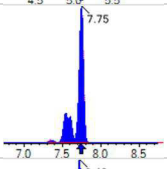
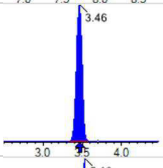
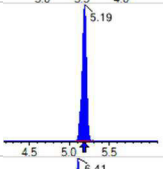
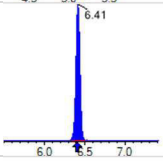
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 2419995 (498.0 / 478.0) 62805	(9.75 , 1.00) (0.00 , N/A , 0.0)	4359.0 812.9	0.0260 104.8 104.8	1.9995	N/A			
NMeFOSA	(512.0 / 219.0) 1939180 (512.0 / 169.0) 1690729	(10.41 , 1.00) (0.00 , N/A , 1.1)	4091.1 4167.1	0.8719 100.5 100.5	8.5818	N/A			
NEtFOSA	(526.0 / 219.0) 1974250 (526.0 / 169.0) 2500436	(10.59 , 1.00) (-0.01 , N/A , 0.9)	5200.8 4706.8	1.2665 101.3 101.3	8.0650	N/A			
NMeFOSAA	(570.0 / 419.0) 308771 (570.0 / 483.0) 132012	(7.72 , 1.00) (0.00 , N/A , -0.2)	206894.3 297.4	0.4275 92.3 92.3	2.1469	N/A			
NEtFOSAA	(584.0 / 419.0) 279848 (584.0 / 526.0) 147534	(7.98 , 1.00) (0.01 , N/A , 0.0)	538.1 1514.4	0.5272 86.4 86.4	2.3076	N/A			
NMeFOSE	(616.0 / 59.0) 838535	(10.35 , 1.00) (0.01 , N/A , 0.0)	1186.7	N/A 0.0 0.0	8.1396	N/A			
NEtFOSE	(630.0 / 59.0) 995393	(10.54 , 1.00) (0.01 , N/A , 0.0)	905.2	N/A 0.0 0.0	8.0774	N/A			
HFPO-DA	(285.0 / 169.0) 576750 (285.0 / 185.0) 1577533	(5.43 , 1.00) (0.00 , N/A , -0.1)	1690.3 3687.8	2.7352 105.1 105.1	4.2785	N/A			
ADONA	(377.0 / 85.0) 2009979 (377.0 / 251.0) 187204	(6.04 , 1.11) (N/A , 0.01 , -0.3)	3802.7 1205.0	0.0931 93.8 93.8	4.1732	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 5889069 (533.0 / 353.0) 1728749	(8.17 , 1.51) (N/A , 0.00 , -0.1)	4302.9 2749.5	0.2936 101.1 101.1	4.0611	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 3410068 (633.0 / 453.0) 1157721	(8.91 , 1.64) (N/A , 0.00 , 0.1)	3846.8 4302.7	0.3395 101.3 101.3	3.9784	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (4)
Acquired: 2023/04/12 - 10:51

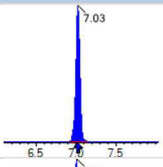
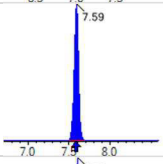
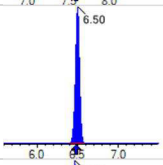
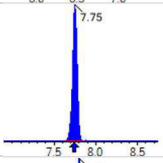
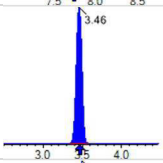
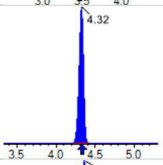
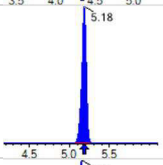
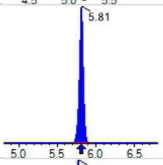
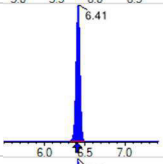
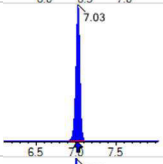
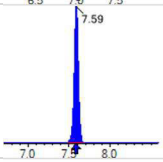
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 63574 (241.0 / 117.0) 115435	(4.06 , 0.94) (N/A , 0.00 , -0.1)	56.3 44.2	1.8157 110.0 110.0	7.7844	N/A			
5:3FTCA	(341.0 / 236.7) 356128 (341.0 / 217.0) 609235	(5.63 , 1.09) (N/A , 0.01 , 0.0)	1065.4 736.4	1.7107 109.1 109.1	7.9522	N/A			
7:3FTCA	(441.0 / 317.0) 596696 (441.0 / 337.0) 512310	(6.97 , 1.34) (N/A , 0.01 , -0.1)	994.9 1308.6	0.8586 99.7 99.7	7.6086	N/A			
PFEESA	(315.0 / 135.0) 1302128 (315.0 / 83.0) 339684	(5.48 , 1.06) (N/A , 0.01 , 0.0)	6510.6 1244.1	0.2609 106.9 106.9	3.6330	N/A			
PFMPA	(229.0 / 85.0) 199588	(3.80 , 0.88) (N/A , 0.00 , 0.0)	2648.6	N/A 0.0 0.0	4.2052	N/A			
PFMBA	(279.0 / 85.0) 729476	(4.60 , 1.06) (N/A , 0.00 , 0.0)	2706.0	N/A 0.0 0.0	4.1976	N/A			
NFDHA	(295.0 / 201.0) 591876 (295.0 / 85.0) 618558	(5.10 , 0.98) (N/A , 0.01 , 0.0)	2964.8 2543.0	1.0451 106.7 106.7	4.0639	N/A			
TDCA	(499.0 / 80.0) 1608638	(7.75 , 1.00) (N/A , 0.01 , 0.0)	15244.9	N/A 0.0 0.0	1.9802	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 139297	(3.46 , N/A) (N/A , 0.00 , N/A)	1548.9	N/A	1.1426 [1.0000]	114.3% { 116.4% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 216976	(5.19 , N/A) (N/A , 0.01 , N/A)	2067.6	N/A	1.0698 [1.0000]	107.0% { 110.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 338606	(6.41 , N/A) (N/A , 0.01 , N/A)	7036.5	N/A	1.0655 [1.0000]	106.5% { 105.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (4)
Acquired: 2023/04/12 - 10:51

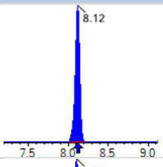
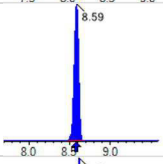
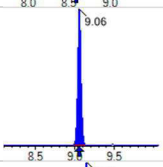
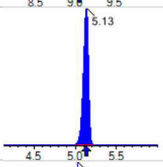
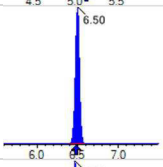
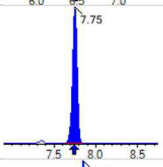
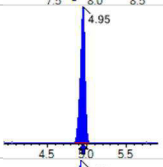
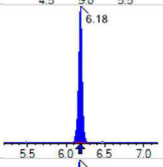
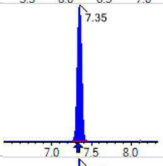
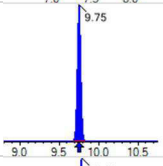
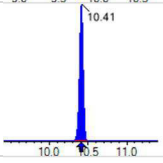
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 307299	(7.03 , N/A) (N/A , 0.01 , N/A)	1805.4	N/A	1.0125 [1.0000]	101.3% { 100.1% }			
13C2_PFDA_IIS	(515.0 / 470.1) 334848	(7.59 , N/A) (N/A , 0.01 , N/A)	337.3	N/A	1.0320 [1.0000]	103.2% { 109.3% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 459265	(6.50 , N/A) (N/A , 0.01 , N/A)	7549.7	N/A	1.0255 [1.0000]	102.5% { 111.2% }			
13C4_PFOS_IIS	(503.0 / 79.9) 734233	(7.75 , N/A) (N/A , 0.01 , N/A)	2189.7	N/A	1.0796 [1.0000]	108.0% { 113.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1120613	(3.46 , N/A) (N/A , 0.00 , N/A)	5048.0	N/A	7.5876 [8.0000]	94.8% { 107.2% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 927683	(4.32 , N/A) (N/A , -0.01 , N/A)	2985.8	N/A	3.8170 [4.0000]	95.4% { 103.4% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 590745	(5.18 , N/A) (N/A , 0.01 , N/A)	3064.0	N/A	1.9208 [2.0000]	96.0% { 101.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 549482	(5.81 , N/A) (N/A , 0.01 , N/A)	2570.7	N/A	2.0455 [2.0000]	102.3% { 112.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 644833	(6.41 , N/A) (N/A , 0.01 , N/A)	4848.1	N/A	1.9294 [2.0000]	96.5% { 104.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 310988	(7.03 , N/A) (N/A , 0.01 , N/A)	2212.1	N/A	1.0772 [1.0000]	107.7% { 103.9% }			
13C6_PFDA_EIS	(519.0 / 474.0) 368275	(7.59 , N/A) (N/A , 0.01 , N/A)	1932.8	N/A	0.9804 [1.0000]	98.0% { 102.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (4)
Acquired: 2023/04/12 - 10:51

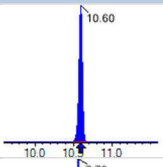
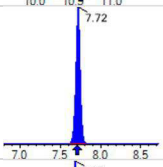
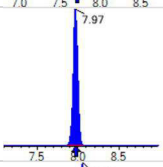
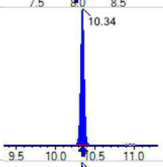
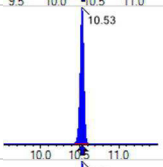
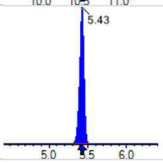
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 356326	(8.12 , N/A) (N/A , 0.00 , N/A)	2830.0	N/A	1.0219 [1.0000]	102.2% { 98.8% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 277837	(8.59 , N/A) (N/A , 0.00 , N/A)	3029.2	N/A	0.9306 [1.0000]	93.1% { 96.8% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 248806	(9.06 , N/A) (N/A , 0.00 , N/A)	1060.9	N/A	0.8837 [1.0000]	88.4% { 82.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1431933	(5.13 , N/A) (N/A , 0.01 , N/A)	3380.6	N/A	1.9859 [2.0000]	99.3% { 102.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 841145	(6.50 , N/A) (N/A , 0.01 , N/A)	2307.4	N/A	1.9870 [2.0000]	99.3% { 104.4% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1668117	(7.75 , N/A) (N/A , 0.01 , N/A)	1790.3	N/A	1.8753 [2.0000]	93.8% { 100.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 225417	(4.95 , N/A) (N/A , 0.00 , N/A)	886.8	N/A	3.4711 [4.0000]	86.8% { 90.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 261090	(6.18 , N/A) (N/A , 0.01 , N/A)	1413.6	N/A	3.5225 [4.0000]	88.1% { 89.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 381946	(7.35 , N/A) (N/A , 0.02 , N/A)	3695.7	N/A	3.8924 [4.0000]	97.3% { 106.4% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2762714	(9.75 , N/A) (N/A , 0.00 , N/A)	4685.1	N/A	1.9132 [2.0000]	95.7% { 106.3% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 544667	(10.41 , N/A) (N/A , 0.00 , N/A)	3146.4	N/A	1.7676 [2.0000]	88.4% { 104.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (4)
Acquired: 2023/04/12 - 10:51

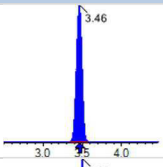
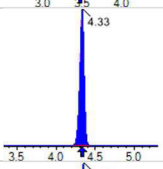
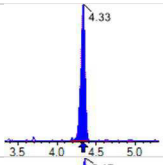
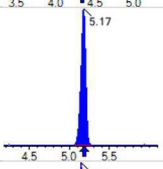
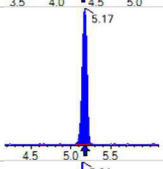
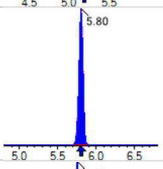
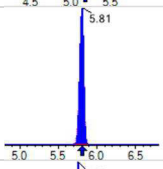
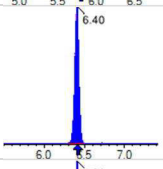
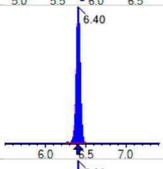
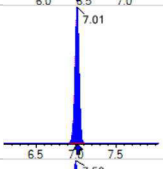
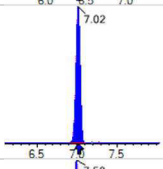
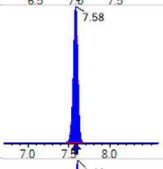
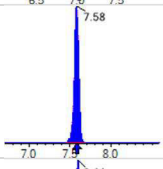
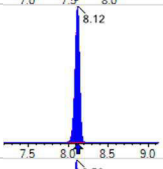
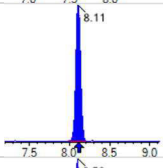
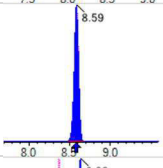
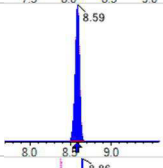
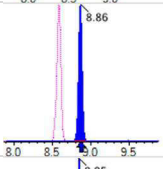
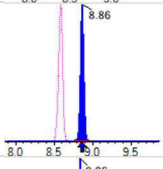
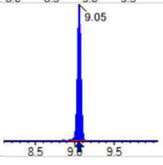
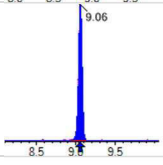
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 466030	(10.60 , N/A) (N/A , 0.00 , N/A)	3096.8	N/A	1.8330 [2.0000]	91.7% { 101.3% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 676813	(7.72 , N/A) (N/A , 0.01 , N/A)	13098.3	N/A	3.5500 [4.0000]	88.7% { 100.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 548388	(7.97 , N/A) (N/A , 0.00 , N/A)	5360.2	N/A	3.5068 [4.0000]	87.7% { 102.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1887213	(10.34 , N/A) (N/A , 0.00 , N/A)	1264.5	N/A	18.4477 [20.0000]	92.2% { 98.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2502644	(10.53 , N/A) (N/A , 0.00 , N/A)	1968.5	N/A	18.5092 [20.0000]	92.5% { 99.2% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1276999	(5.43 , N/A) (N/A , 0.01 , N/A)	2391.3	N/A	7.3603 [8.0000]	92.0% { 99.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (5)
Acquired: 2023/04/12 - 11:04

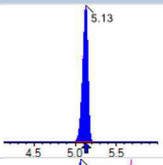
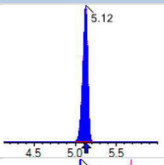
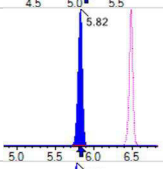
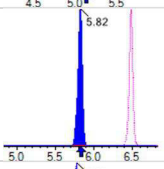
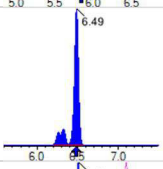
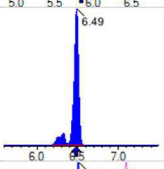
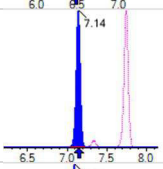
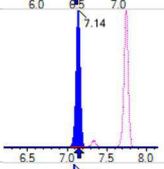
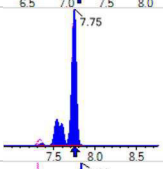
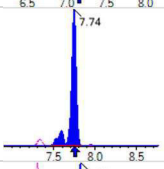
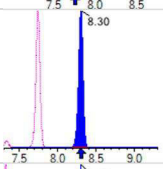
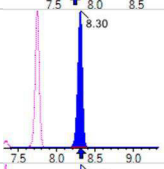
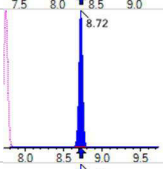
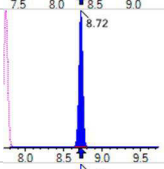
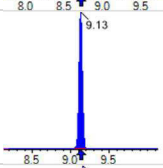
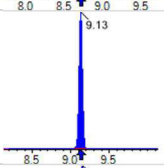
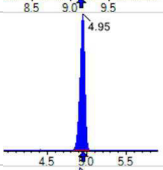
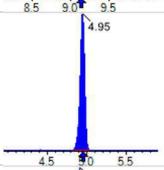
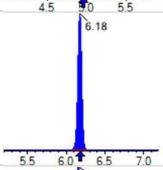
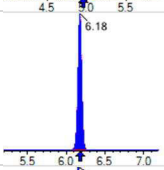
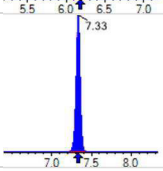
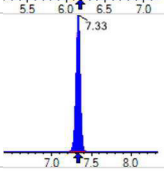
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2320449	(3.46 , 1.00) (0.00 , N/A , 0.0)	190.5	N/A 0.0 0.0	20.3252	N/A			
PFPeA	(263.0 / 219.0) 2105536 (263.0 / 69.0) 27645	(4.33 , 1.00) (0.00 , N/A , -0.1)	2719.6 363.2	0.0131 100.0 100.0	9.7693	N/A			
PFHxA	(313.0 / 269.0) 1320877 (313.0 / 119.0) 144147	(5.17 , 1.00) (0.00 , N/A , 0.2)	1292.3 4465.8	0.1091 100.0 100.0	4.6840	N/A			
PFHpA	(363.0 / 319.0) 1093207 (363.0 / 169.0) 333754	(5.80 , 1.00) (0.00 , N/A , -0.1)	4829.6 46532.1	0.3053 100.0 100.0	5.1762	N/A			
PFOA	(413.0 / 369.0) 1459488 (413.0 / 169.0) 456884	(6.40 , 1.00) (0.00 , N/A , 0.0)	2025.7 87664.8	0.3130 100.0 100.0	5.0383	N/A			
PFNA	(463.0 / 419.0) 1312668 (463.0 / 169.0) 280290	(7.01 , 1.00) (0.00 , N/A , 0.0)	171692.5 29003.0	0.2135 100.0 100.0	4.7543	N/A			
PFDA	(513.0 / 469.0) 1742779 (513.0 / 169.0) 199783	(7.58 , 1.00) (0.00 , N/A , 0.1)	2127.9 3714634.4	0.1146 100.0 100.0	5.1535	N/A			
PFUnA	(563.0 / 519.0) 1487506 (563.0 / 169.0) 175790	(8.12 , 1.00) (0.00 , N/A , 0.5)	3170.0 203146.9	0.1182 100.0 100.0	4.6861	N/A			
PFDoA	(613.0 / 569.0) 1236883 (613.0 / 169.0) 211978	(8.59 , 1.00) (0.00 , N/A , 0.0)	3122.0 1830.7	0.1714 100.0 100.0	4.7494	N/A			
PFTrDA	(663.0 / 619.0) 1175635 (663.0 / 169.0) 291337	(8.86 , 1.03) (N/A , 0.00 , 0.0)	3857.6 2427.2	0.2478 100.0 100.0	4.9546	N/A			
PFTeDA	(713.0 / 669.0) 1226134 (713.0 / 169.0) 247092	(9.05 , 1.00) (0.00 , N/A , -0.2)	2739.3 1112.9	0.2015 100.0 100.0	4.4380	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (5)
Acquired: 2023/04/12 - 11:04

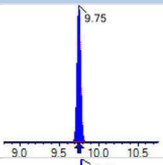
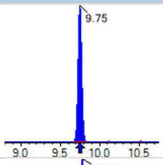
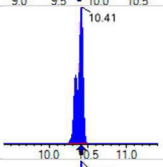
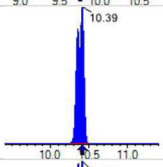
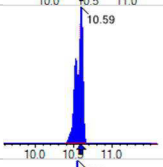
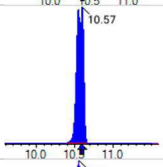
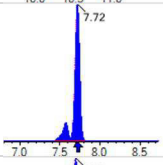
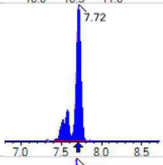
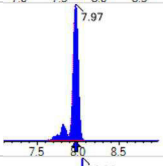
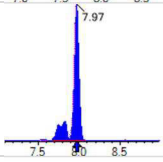
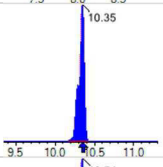
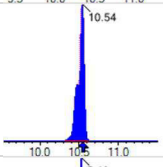
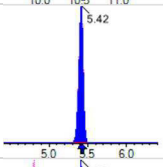
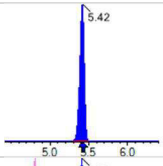
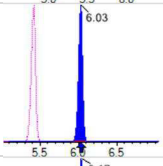
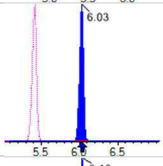
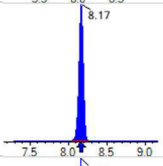
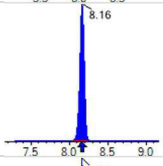
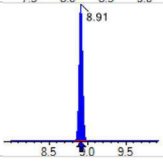
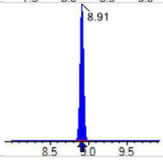
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 2197574 (299.0 / 99.0) 1412848	(5.13 , 1.00) (0.00 , N/A , 0.0)	9266.6 6185.0	0.6429 100.0 100.0	4.4173	N/A			
PFPeS	(349.0 / 80.0) 3715977 (349.0 / 99.0) 1259977	(5.82 , 0.90) (N/A , 0.00 , 0.0)	191890.6 81660.5	0.3391 100.0 100.0	4.9976	N/A			
PFHxS	(399.0 / 80.0) 2943855 (399.0 / 99.0) 1019531	(6.49 , 1.00) (0.00 , N/A , 0.0)	23202.8 3676.0	0.3463 100.0 100.0	4.6463	N/A			
PFHpS	(449.0 / 80.0) 3197307 (449.0 / 99.0) 886968	(7.14 , 0.92) (N/A , 0.00 , 0.0)	378884.0 5326.6	0.2774 100.0 100.0	4.7589	N/A			
PFOS	(499.0 / 80.0) 4263526 (499.0 / 99.0) 954029	(7.75 , 1.00) (0.00 , N/A , 0.1)	1679.0 1691.4	0.2238 100.0 100.0	4.5217	N/A			
PFNS	(549.0 / 80.0) 4329476 (549.0 / 99.0) 1047787	(8.30 , 1.07) (N/A , 0.00 , -0.1)	60400.1 5929.8	0.2420 100.0 100.0	4.9135	N/A			
PFDS	(599.0 / 80.0) 4840203 (599.0 / 99.0) 1084511	(8.72 , 1.13) (N/A , 0.00 , -0.1)	7178.7 37340.2	0.2241 100.0 100.0	4.8591	N/A			
PFDoS	(699.0 / 80.0) 3581980 (699.0 / 99.0) 857308	(9.13 , 1.18) (N/A , 0.00 , 0.0)	4056.3 2638.7	0.2393 100.0 100.0	4.6747	N/A			
4:2FTS	(327.0 / 307.0) 3580637 (327.0 / 81.0) 2434434	(4.95 , 1.00) (0.00 , N/A , 0.1)	4107.0 2104.8	0.6799 100.0 100.0	19.3489	N/A			
6:2FTS	(427.0 / 407.0) 2381613 (427.0 / 81.0) 1677336	(6.18 , 1.00) (0.00 , N/A , 0.0)	3914.2 2876.3	0.7043 100.0 100.0	19.0155	N/A			
8:2FTS	(527.0 / 507.0) 2568872 (527.0 / 81.0) 1735890	(7.33 , 1.00) (0.00 , N/A , 0.0)	4608.1 3530.1	0.6757 100.0 100.0	20.2902	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (5)
Acquired: 2023/04/12 - 11:04

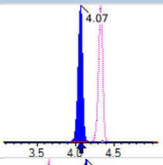
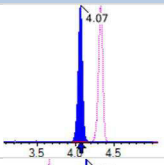
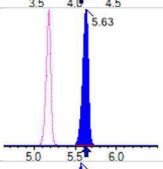
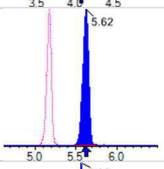
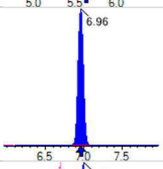
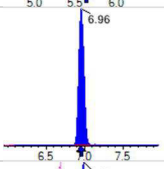
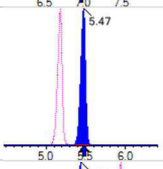
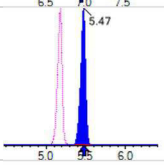
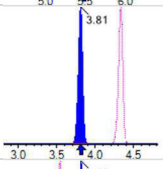
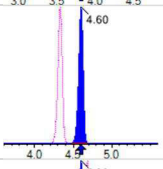
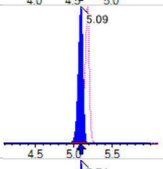
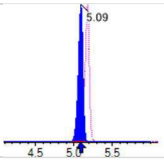
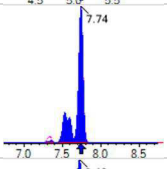
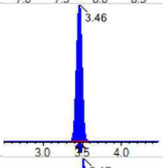
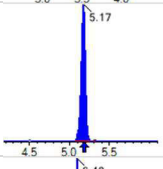
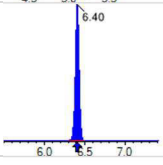
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 5956235 (498.0 / 478.0) 147480	(9.75 , 1.00) (0.00 , N/A , -0.1)	6488.3 971.7	0.0248 100.0 100.0	5.2324	N/A			
NMeFOSA	(512.0 / 219.0) 4723945 (512.0 / 169.0) 4098097	(10.41 , 1.00) (0.00 , N/A , 1.4)	6007.4 6227.7	0.8675 100.0 100.0	21.8992	N/A			
NEtFOSA	(526.0 / 219.0) 5044008 (526.0 / 169.0) 6305914	(10.59 , 1.00) (-0.01 , N/A , 1.0)	7194.5 6220.8	1.2502 100.0 100.0	20.8655	N/A			
NMeFOSAA	(570.0 / 419.0) 744811 (570.0 / 483.0) 345027	(7.72 , 1.00) (0.01 , N/A , 0.2)	2713.9 343.0	0.4632 100.0 100.0	5.2097	N/A			
NEtFOSAA	(584.0 / 419.0) 598808 (584.0 / 526.0) 365558	(7.97 , 1.00) (0.01 , N/A , 0.0)	9177.6 1227.1	0.6105 100.0 100.0	5.0437	N/A			
NMeFOSE	(616.0 / 59.0) 2095449	(10.35 , 1.00) (0.01 , N/A , 0.0)	2102.7	N/A 0.0 0.0	20.0939	N/A			
NEtFOSE	(630.0 / 59.0) 2549217	(10.54 , 1.00) (0.01 , N/A , 0.0)	1031.8	N/A 0.0 0.0	20.5185	N/A			
HFPO-DA	(285.0 / 169.0) 1461385 (285.0 / 185.0) 3801924	(5.42 , 1.00) (0.00 , N/A , 0.0)	2986.8 4098.0	2.6016 100.0 100.0	10.7279	N/A			
ADONA	(377.0 / 85.0) 4619119 (377.0 / 251.0) 458478	(6.03 , 1.11) (N/A , 0.00 , -0.1)	3418.0 4047.5	0.0993 100.0 100.0	9.4904	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 13838069 (533.0 / 353.0) 4018484	(8.17 , 1.51) (N/A , 0.00 , 0.1)	4746.1 3832.0	0.2904 100.0 100.0	9.4434	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 8662384 (633.0 / 453.0) 2903433	(8.91 , 1.65) (N/A , 0.00 , 0.0)	5334.0 3741.5	0.3352 100.0 100.0	10.0007	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (5)
Acquired: 2023/04/12 - 11:04

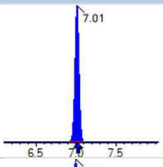
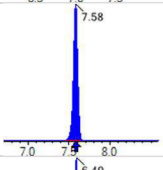
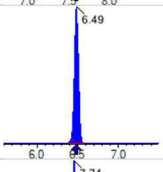
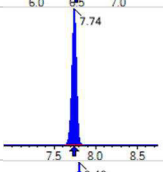
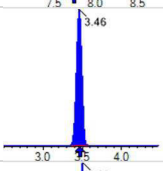
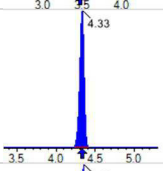
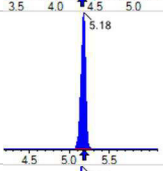
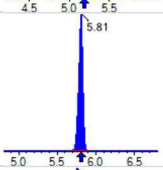
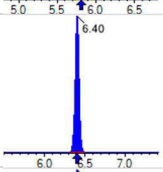
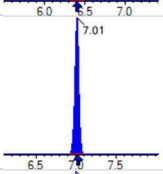
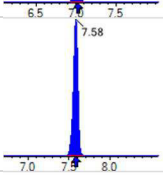
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 156445 (241.0 / 117.0) 258318	(4.07 , 0.94) (N/A , 0.00 , 0.1)	71.8 56.4	1.6512 100.0 100.0	19.8096	N/A			
5:3FTCA	(341.0 / 236.7) 931064 (341.0 / 217.0) 1460507	(5.63 , 1.09) (N/A , 0.00 , 0.2)	1287.4 1384.4	1.5686 100.0 100.0	21.0067	N/A			
7:3FTCA	(441.0 / 317.0) 1453989 (441.0 / 337.0) 1252365	(6.96 , 1.34) (N/A , 0.00 , 0.1)	1835.6 1657.8	0.8613 100.0 100.0	18.7331	N/A			
PFEESA	(315.0 / 135.0) 3120890 (315.0 / 83.0) 761522	(5.47 , 1.06) (N/A , 0.00 , -0.1)	2732.9 1380.5	0.2440 100.0 100.0	8.7979	N/A			
PFMPA	(229.0 / 85.0) 490395	(3.81 , 0.88) (N/A , 0.00 , 0.0)	6106.9	N/A 0.0 0.0	10.6847	N/A			
PFMBA	(279.0 / 85.0) 1749289	(4.60 , 1.06) (N/A , 0.00 , 0.0)	4208.5	N/A 0.0 0.0	10.4093	N/A			
NFDHA	(295.0 / 201.0) 1519489 (295.0 / 85.0) 1488260	(5.09 , 0.98) (N/A , 0.00 , 0.0)	2632.9 1925.7	0.9794 100.0 100.0	10.5417	N/A			
TDCA	(499.0 / 80.0) 3846263	(7.74 , 1.00) (N/A , 0.00 , 0.0)	23403.9	N/A 0.0 0.0	4.7394	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 119683	(3.46 , N/A) (N/A , 0.00 , N/A)	1300.3	N/A	0.9817 [1.0000]	98.2% { 100.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 196726	(5.17 , N/A) (N/A , 0.00 , N/A)	4098.7	N/A	0.9699 [1.0000]	97.0% { 100.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 322339	(6.40 , N/A) (N/A , 0.00 , N/A)	10107.1	N/A	1.0143 [1.0000]	101.4% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (5)
Acquired: 2023/04/12 - 11:04

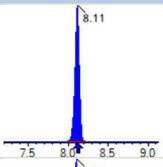
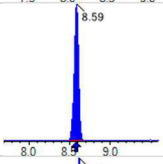
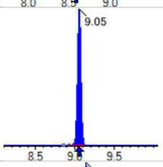
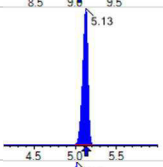
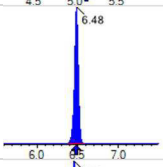
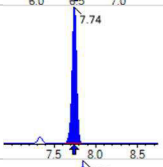
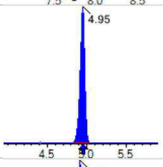
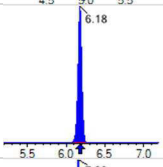
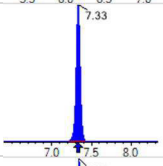
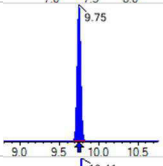
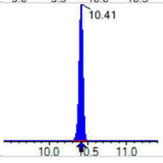
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 306977	(7.01 , N/A) (N/A , 0.00 , N/A)	48619.7	N/A	1.0115 [1.0000]	101.1% { 100.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 306227	(7.58 , N/A) (N/A , 0.00 , N/A)	2832.4	N/A	0.9438 [1.0000]	94.4% { 100.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 412970	(6.49 , N/A) (N/A , 0.00 , N/A)	1710.1	N/A	0.9221 [1.0000]	92.2% { 100.0% }			
13C4_PFOS_IIS	(503.0 / 79.9) 646927	(7.74 , N/A) (N/A , 0.00 , N/A)	2157.4	N/A	0.9513 [1.0000]	95.1% { 100.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1045207	(3.46 , N/A) (N/A , 0.00 , N/A)	5775.3	N/A	8.2368 [8.0000]	103.0% { 100.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 897081	(4.33 , N/A) (N/A , 0.00 , N/A)	3048.5	N/A	4.0711 [4.0000]	101.8% { 100.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 584661	(5.18 , N/A) (N/A , 0.00 , N/A)	3089.4	N/A	2.0967 [2.0000]	104.8% { 100.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 490028	(5.81 , N/A) (N/A , 0.00 , N/A)	1960.1	N/A	2.0119 [2.0000]	100.6% { 100.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 614459	(6.40 , N/A) (N/A , 0.00 , N/A)	2892.1	N/A	1.9313 [2.0000]	96.6% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 299336	(7.01 , N/A) (N/A , 0.00 , N/A)	5442.1	N/A	1.0379 [1.0000]	103.8% { 100.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 359785	(7.58 , N/A) (N/A , 0.00 , N/A)	2401.6	N/A	1.0473 [1.0000]	104.7% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (5)
Acquired: 2023/04/12 - 11:04

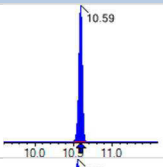
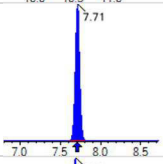
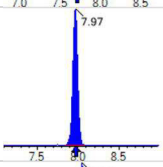
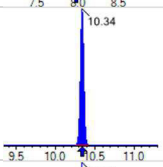
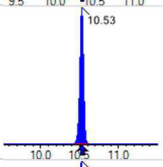
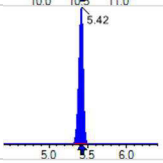
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 360770	(8.11 , N/A) (N/A , 0.00 , N/A)	2079.6	N/A	1.1313 [1.0000]	113.1% { 100.0% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 287142	(8.59 , N/A) (N/A , 0.00 , N/A)	2311.7	N/A	1.0516 [1.0000]	105.2% { 100.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 301454	(9.05 , N/A) (N/A , 0.00 , N/A)	1075.2	N/A	1.1708 [1.0000]	117.1% { 100.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1394957	(5.13 , N/A) (N/A , 0.00 , N/A)	2652.9	N/A	2.1515 [2.0000]	107.6% { 100.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 805972	(6.48 , N/A) (N/A , 0.00 , N/A)	3712.7	N/A	2.1173 [2.0000]	105.9% { 100.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1666405	(7.74 , N/A) (N/A , 0.00 , N/A)	1620.0	N/A	2.1262 [2.0000]	106.3% { 100.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 249277	(4.95 , N/A) (N/A , 0.00 , N/A)	1092.6	N/A	4.2688 [4.0000]	106.7% { 100.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 292750	(6.18 , N/A) (N/A , 0.00 , N/A)	1884.4	N/A	4.3924 [4.0000]	109.8% { 100.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 358942	(7.33 , N/A) (N/A , 0.00 , N/A)	3215.9	N/A	4.0680 [4.0000]	101.7% { 100.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2598438	(9.75 , N/A) (N/A , 0.00 , N/A)	2895.9	N/A	2.0423 [2.0000]	102.1% { 100.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 519955	(10.41 , N/A) (N/A , 0.00 , N/A)	2377.4	N/A	1.9151 [2.0000]	95.8% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (5)
Acquired: 2023/04/12 - 11:04

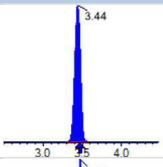
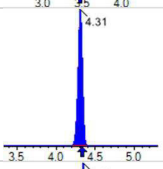
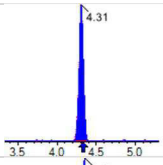
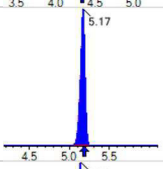
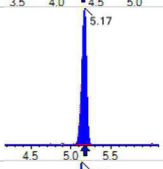
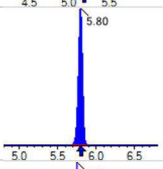
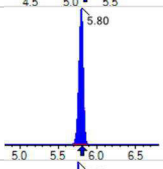
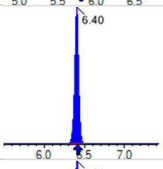
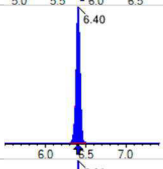
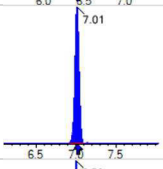
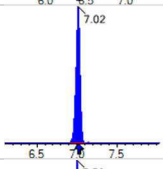
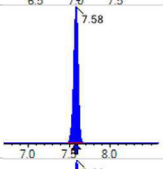
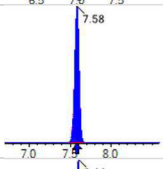
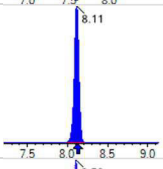
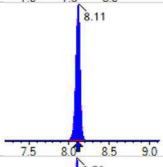
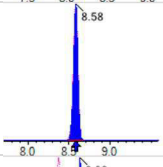
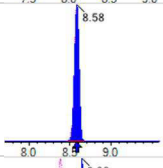
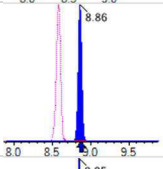
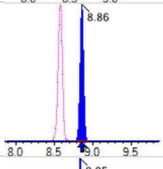
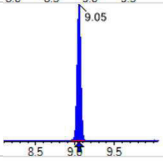
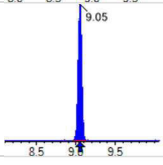
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 460217	(10.59 , N/A) (N/A , 0.00 , N/A)	2334.3	N/A	2.0544 [2.0000]	102.7% { 100.0% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 672785	(7.71 , N/A) (N/A , 0.00 , N/A)	1519.0	N/A	4.0051 [4.0000]	100.1% { 100.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 536849	(7.97 , N/A) (N/A , 0.00 , N/A)	3127.1	N/A	3.8963 [4.0000]	97.4% { 100.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1910355	(10.34 , N/A) (N/A , 0.00 , N/A)	1515.0	N/A	21.1941 [20.0000]	106.0% { 100.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2523117	(10.53 , N/A) (N/A , 0.00 , N/A)	2447.9	N/A	21.1790 [20.0000]	105.9% { 100.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1290446	(5.42 , N/A) (N/A , 0.00 , N/A)	3323.1	N/A	8.2034 [8.0000]	102.5% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (6)
Acquired: 2023/04/12 - 11:16

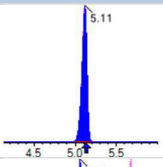
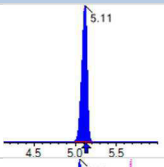
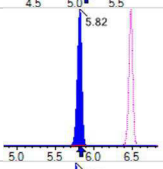
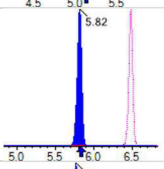
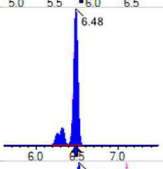
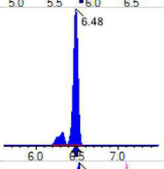
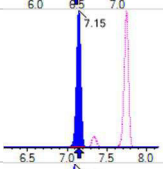
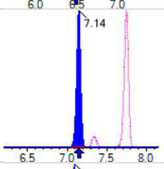
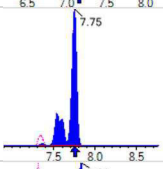
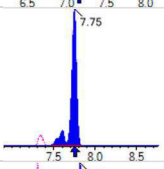
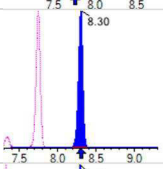
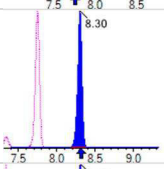
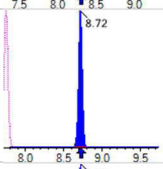
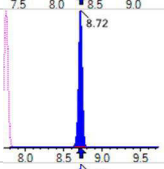
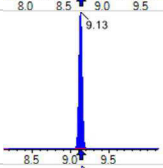
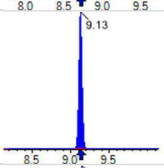
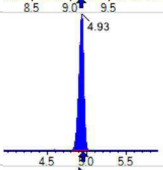
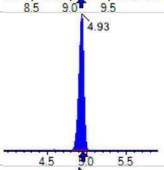
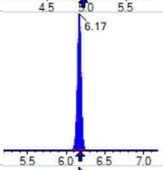
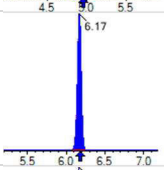
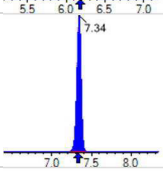
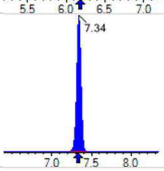
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 4413238	(3.44 , 1.00) (0.00 , N/A , 0.0)	198.0	N/A 0.0 0.0	39.3595	N/A			
PFPeA	(263.0 / 219.0) 4213467 (263.0 / 69.0) 49283	(4.31 , 1.00) (0.00 , N/A , 0.0)	4110.6 694.8	0.0117 89.1 89.1	19.1101	N/A			
PFHxA	(313.0 / 269.0) 2653609 (313.0 / 119.0) 270477	(5.17 , 1.00) (0.00 , N/A , 0.0)	1929.8 1913.8	0.1019 93.4 93.4	9.3786	N/A			
PFHpA	(363.0 / 319.0) 2221271 (363.0 / 169.0) 700793	(5.80 , 1.00) (0.00 , N/A , 0.0)	5173.5 98980.5	0.3155 103.3 103.3	9.8949	N/A			
PFOA	(413.0 / 369.0) 2977033 (413.0 / 169.0) 956817	(6.40 , 1.00) (0.00 , N/A , 0.0)	3000.3 15136.2	0.3214 102.7 102.7	9.6693	N/A			
PFNA	(463.0 / 419.0) 2684895 (463.0 / 169.0) 597078	(7.01 , 1.00) (0.00 , N/A , -0.2)	7300.9 9700322.7	0.2224 104.1 104.1	10.6110	N/A			
PFDA	(513.0 / 469.0) 3542397 (513.0 / 169.0) 389129	(7.58 , 1.00) (0.00 , N/A , 0.1)	3116.4 14991.6	0.1098 95.8 95.8	9.2304	N/A			
PFUnA	(563.0 / 519.0) 3010650 (563.0 / 169.0) 336319	(8.11 , 1.00) (0.00 , N/A , 0.0)	3207.5 8133.1	0.1117 94.5 94.5	9.9525	N/A			
PFDoA	(613.0 / 569.0) 2571423 (613.0 / 169.0) 415561	(8.58 , 1.00) (0.00 , N/A , 0.0)	2976.4 3880.1	0.1616 94.3 94.3	8.8859	N/A			
PFTrDA	(663.0 / 619.0) 2380621 (663.0 / 169.0) 549850	(8.86 , 1.03) (N/A , 0.00 , -0.1)	4345.0 4671.5	0.2310 93.2 93.2	9.0292	N/A			
PFTeDA	(713.0 / 669.0) 2541738 (713.0 / 169.0) 492248	(9.05 , 1.00) (0.00 , N/A , 0.0)	3229.0 1444.7	0.1937 96.1 96.1	9.6890	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (6)
Acquired: 2023/04/12 - 11:16

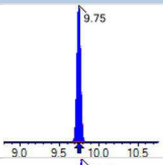
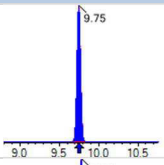
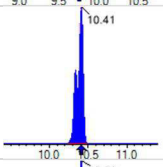
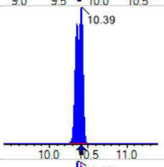
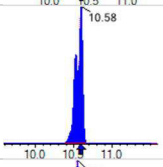
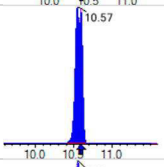
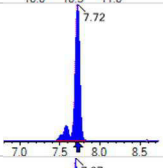
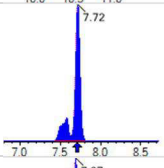
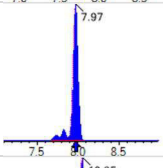
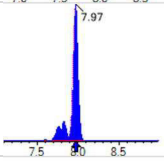
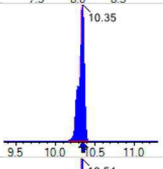
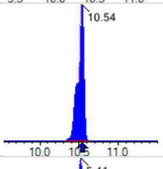
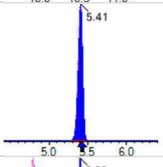
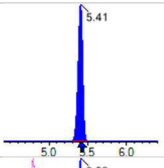
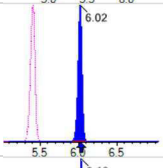
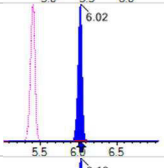
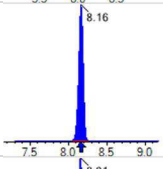
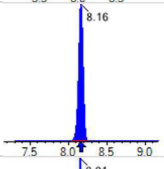
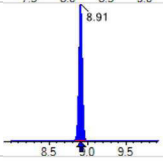
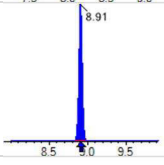
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 4485638 (299.0 / 99.0) 2753650	(5.11 , 1.00) (0.00 , N/A , 0.0)	6833.8 6723.5	0.6139 95.5 95.5	8.5831	N/A			
PFPeS	(349.0 / 80.0) 7157621 (349.0 / 99.0) 2594810	(5.82 , 0.90) (N/A , -0.01 , 0.1)	65311.8 271652.5	0.3625 106.9 106.9	9.0781	N/A			
PFHxS	(399.0 / 80.0) 5977955 (399.0 / 99.0) 2071673	(6.48 , 1.00) (0.00 , N/A , 0.1)	7034.8 1901409.3	0.3466 100.1 100.1	8.8979	N/A			
PFHpS	(449.0 / 80.0) 6519526 (449.0 / 99.0) 1840537	(7.15 , 0.92) (N/A , 0.01 , 0.0)	403632.2 9814.5	0.2823 101.8 101.8	9.5942	N/A			
PFOS	(499.0 / 80.0) 8566440 (499.0 / 99.0) 1922105	(7.75 , 1.00) (0.00 , N/A , 0.1)	1781.4 2488.2	0.2244 100.3 100.3	8.9828	N/A			
PFNS	(549.0 / 80.0) 8818321 (549.0 / 99.0) 2127916	(8.30 , 1.07) (N/A , 0.00 , 0.0)	15240.9 2196097.0	0.2413 99.7 99.7	9.8949	N/A			
PFDS	(599.0 / 80.0) 9668662 (599.0 / 99.0) 2174592	(8.72 , 1.13) (N/A , 0.00 , 0.0)	10242.9 9999.7	0.2249 100.4 100.4	9.5970	N/A			
PFDoS	(699.0 / 80.0) 7636022 (699.0 / 99.0) 1719647	(9.13 , 1.18) (N/A , 0.00 , 0.1)	5376.2 3307.7	0.2252 94.1 94.1	9.8531	N/A			
4:2FTS	(327.0 / 307.0) 7197888 (327.0 / 81.0) 4496331	(4.93 , 1.00) (0.00 , N/A , 0.0)	3792.9 2906.5	0.6247 91.9 91.9	39.5056	N/A			
6:2FTS	(427.0 / 407.0) 4671416 (427.0 / 81.0) 3114289	(6.17 , 1.00) (0.00 , N/A , 0.0)	3812.3 4241.6	0.6667 94.7 94.7	35.9116	N/A			
8:2FTS	(527.0 / 507.0) 5170482 (527.0 / 81.0) 3737679	(7.34 , 1.00) (0.00 , N/A , 0.2)	4176.7 5169.5	0.7229 107.0 107.0	36.6329	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (6)
Acquired: 2023/04/12 - 11:16

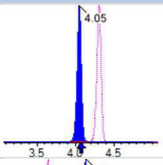
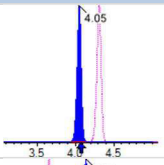
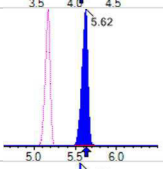
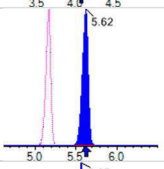
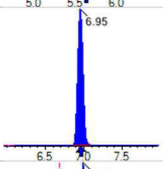
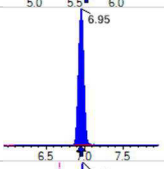
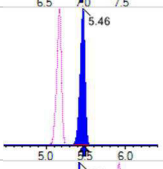
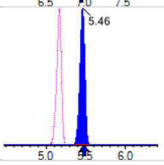
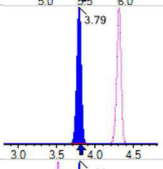
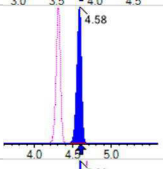
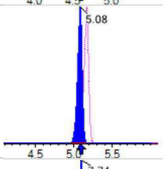
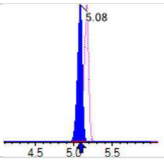
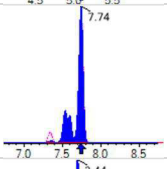
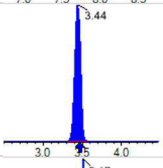
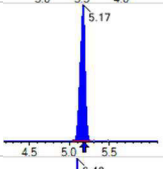
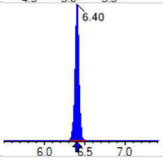
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 12332842 (498.0 / 478.0) 279225	(9.75 , 1.00) (0.00 , N/A , 0.0)	6964.3 1940.9	0.0226 91.4 91.4	9.9797	N/A			
NMeFOSA	(512.0 / 219.0) 9910834 (512.0 / 169.0) 8699182	(10.41 , 1.00) (0.00 , N/A , 1.3)	5445.8 4992.7	0.8777 101.2 101.2	39.0399	N/A			
NEtFOSA	(526.0 / 219.0) 10346391 (526.0 / 169.0) 13203304	(10.58 , 1.00) (-0.01 , N/A , 0.8)	6956.8 8453.9	1.2761 102.1 102.1	40.4083	N/A			
NMeFOSAA	(570.0 / 419.0) 1460799 (570.0 / 483.0) 689583	(7.72 , 1.00) (0.00 , N/A , 0.1)	3428.8 608.8	0.4721 101.9 101.9	8.8635	N/A			
NEtFOSAA	(584.0 / 419.0) 1253982 (584.0 / 526.0) 737571	(7.97 , 1.00) (0.00 , N/A , 0.0)	2970.1 8347229.9	0.5882 96.3 96.3	9.6822	N/A			
NMeFOSE	(616.0 / 59.0) 4539926	(10.35 , 1.00) (0.01 , N/A , 0.0)	3319.7	N/A 0.0 0.0	39.2817	N/A			
NEtFOSE	(630.0 / 59.0) 5452766	(10.54 , 1.00) (0.01 , N/A , 0.0)	1302.6	N/A 0.0 0.0	40.0180	N/A			
HFPO-DA	(285.0 / 169.0) 2733358 (285.0 / 185.0) 7614922	(5.41 , 1.00) (0.00 , N/A , 0.1)	2063.5 5026.5	2.7859 107.1 107.1	19.4488	N/A			
ADONA	(377.0 / 85.0) 9229894 (377.0 / 251.0) 941044	(6.02 , 1.11) (N/A , -0.01 , -0.1)	5464.0 1895.4	0.1020 102.7 102.7	18.3809	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 27143500 (533.0 / 353.0) 8426739	(8.16 , 1.51) (N/A , 0.00 , 0.1)	5847.2 3794.0	0.3105 106.9 106.9	17.9541	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 16115108 (633.0 / 453.0) 5601397	(8.91 , 1.65) (N/A , 0.00 , 0.0)	6662.3 6634.6	0.3476 103.7 103.7	18.0332	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (6)
Acquired: 2023/04/12 - 11:16

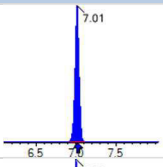
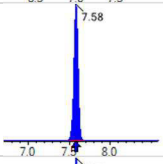
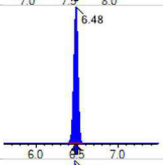
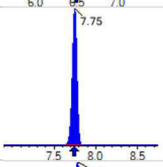
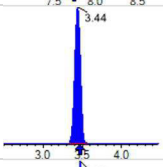
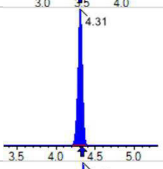
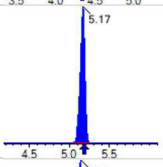
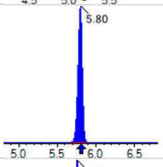
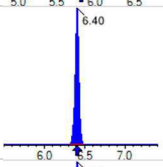
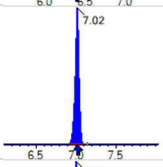
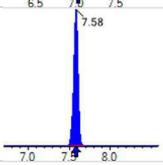
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 318165 (241.0 / 117.0) 527361	(4.05 , 0.94) (N/A , -0.01 , 0.1)	79.6 74.1	1.6575 100.4 100.4	39.3808	N/A			
5:3FTCA	(341.0 / 236.7) 1806840 (341.0 / 217.0) 3076799	(5.62 , 1.09) (N/A , -0.01 , 0.0)	1861.2 1733.3	1.7029 108.6 108.6	40.6300	N/A			
7:3FTCA	(441.0 / 317.0) 2971733 (441.0 / 337.0) 2473862	(6.95 , 1.35) (N/A , 0.00 , 0.0)	1829.8 1956.0	0.8325 96.6 96.6	38.1600	N/A			
PFEESA	(315.0 / 135.0) 6258811 (315.0 / 83.0) 1514180	(5.46 , 1.06) (N/A , -0.01 , 0.2)	2788.9 2189.8	0.2419 99.1 99.1	17.5851	N/A			
PFMPA	(229.0 / 85.0) 892434	(3.79 , 0.88) (N/A , -0.02 , 0.0)	5958.5	N/A 0.0 0.0	19.0070	N/A			
PFMBA	(279.0 / 85.0) 3321752	(4.58 , 1.06) (N/A , -0.02 , 0.0)	4141.2	N/A 0.0 0.0	19.3217	N/A			
NFDHA	(295.0 / 201.0) 2811382 (295.0 / 85.0) 2883550	(5.08 , 0.98) (N/A , -0.01 , 0.0)	3490.4 2855.3	1.0257 104.7 104.7	19.4393	N/A			
TDCA	(499.0 / 80.0) 7527672	(7.74 , 1.00) (N/A , 0.00 , 0.0)	34769.6	N/A 0.0 0.0	9.1711	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 122377	(3.44 , N/A) (N/A , -0.02 , N/A)	1442.5	N/A	1.0038 [1.0000]	100.4% { 102.3% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 200114	(5.17 , N/A) (N/A , -0.01 , N/A)	1785.3	N/A	0.9866 [1.0000]	98.7% { 101.7% }			
13C4_PFOA_IIS	(417.0 / 372.0) 330519	(6.40 , N/A) (N/A , 0.00 , N/A)	21186.9	N/A	1.0400 [1.0000]	104.0% { 102.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (6)
Acquired: 2023/04/12 - 11:16

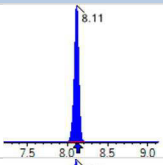
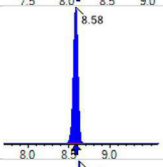
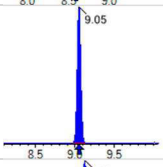
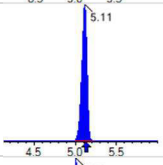
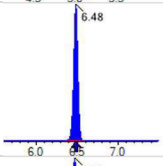
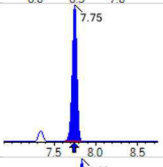
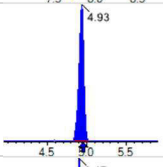
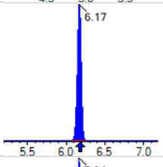
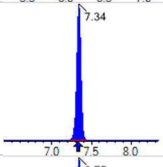
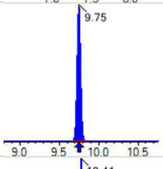
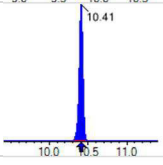
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 295167	(7.01 , N/A) (N/A , 0.00 , N/A)	6556.7	N/A	0.9725 [1.0000]	97.3% { 96.2% }			
13C2_PFDA_IIS	(515.0 / 470.1) 326906	(7.58 , N/A) (N/A , 0.01 , N/A)	16207.3	N/A	1.0075 [1.0000]	100.8% { 106.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 443471	(6.48 , N/A) (N/A , 0.00 , N/A)	2103.1	N/A	0.9902 [1.0000]	99.0% { 107.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 721906	(7.75 , N/A) (N/A , 0.00 , N/A)	1849.4	N/A	1.0615 [1.0000]	106.2% { 111.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1026535	(3.44 , N/A) (N/A , -0.02 , N/A)	5338.0	N/A	7.9116 [8.0000]	98.9% { 98.2% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 917723	(4.31 , N/A) (N/A , -0.02 , N/A)	3088.2	N/A	4.0942 [4.0000]	102.4% { 102.3% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 586617	(5.17 , N/A) (N/A , -0.01 , N/A)	1800.6	N/A	2.0681 [2.0000]	103.4% { 100.3% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 520851	(5.80 , N/A) (N/A , -0.01 , N/A)	2986.1	N/A	2.1023 [2.0000]	105.1% { 106.3% }			
13C8_PFOA_EIS	(421.0 / 376.0) 653078	(6.40 , N/A) (N/A , 0.00 , N/A)	2992.4	N/A	2.0019 [2.0000]	100.1% { 106.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 274321	(7.02 , N/A) (N/A , 0.00 , N/A)	5250.5	N/A	0.9892 [1.0000]	98.9% { 91.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 408297	(7.58 , N/A) (N/A , 0.00 , N/A)	7474.0	N/A	1.1133 [1.0000]	111.3% { 113.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (6)
Acquired: 2023/04/12 - 11:16

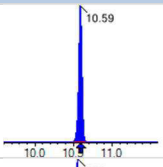
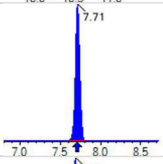
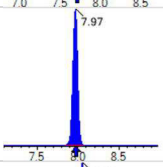
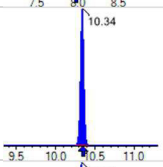
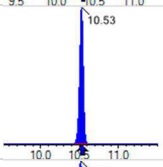
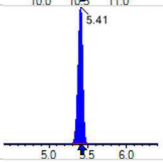
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 343809	(8.11 , N/A) (N/A , 0.00 , N/A)	3663.5	N/A	1.0099 [1.0000]	101.0% { 95.3% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 319063	(8.58 , N/A) (N/A , -0.01 , N/A)	2764.7	N/A	1.0946 [1.0000]	109.5% { 111.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 286236	(9.05 , N/A) (N/A , 0.00 , N/A)	1716.5	N/A	1.0414 [1.0000]	104.1% { 95.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1465385	(5.11 , N/A) (N/A , -0.01 , N/A)	6409.9	N/A	2.1047 [2.0000]	105.2% { 105.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 854632	(6.48 , N/A) (N/A , 0.00 , N/A)	1982.4	N/A	2.0907 [2.0000]	104.5% { 106.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1685420	(7.75 , N/A) (N/A , 0.00 , N/A)	1465.5	N/A	1.9271 [2.0000]	96.4% { 101.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 245429	(4.93 , N/A) (N/A , -0.01 , N/A)	1112.0	N/A	3.9138 [4.0000]	97.8% { 98.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 304052	(6.17 , N/A) (N/A , -0.01 , N/A)	2364.4	N/A	4.2482 [4.0000]	106.2% { 103.9% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 400153	(7.34 , N/A) (N/A , 0.01 , N/A)	2209.2	N/A	4.2231 [4.0000]	105.6% { 111.5% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2820892	(9.75 , N/A) (N/A , 0.00 , N/A)	4514.4	N/A	1.9868 [2.0000]	99.3% { 108.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 611915	(10.41 , N/A) (N/A , 0.00 , N/A)	2137.6	N/A	2.0197 [2.0000]	101.0% { 117.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (6)
Acquired: 2023/04/12 - 11:16

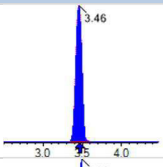
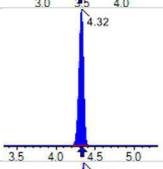
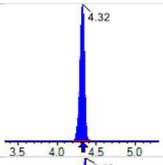
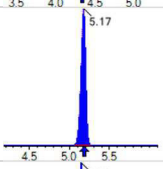
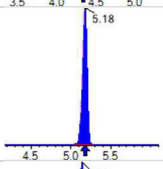
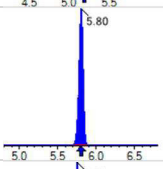
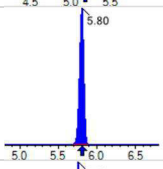
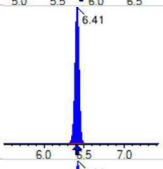
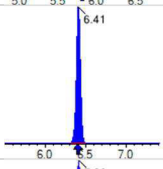
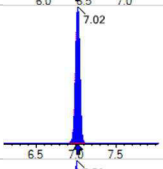
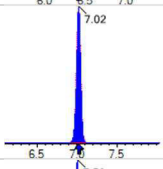
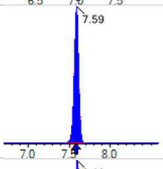
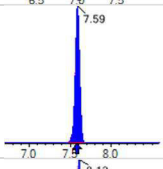
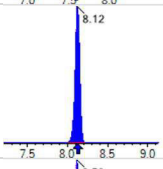
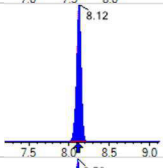
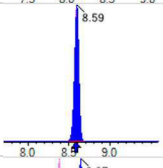
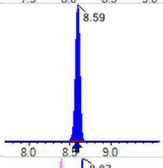
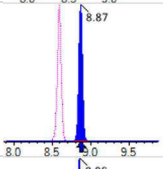
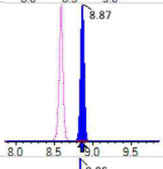
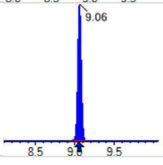
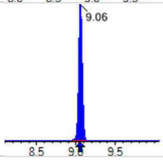
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 487453	(10.59 , N/A) (N/A , 0.00 , N/A)	2630.2	N/A	1.9500 [2.0000]	97.5% { 105.9% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 775584	(7.71 , N/A) (N/A , 0.00 , N/A)	1762.9	N/A	4.1375 [4.0000]	103.4% { 115.3% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 585646	(7.97 , N/A) (N/A , 0.00 , N/A)	4295.3	N/A	3.8090 [4.0000]	95.2% { 109.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2117188	(10.34 , N/A) (N/A , 0.00 , N/A)	1788.0	N/A	21.0492 [20.0000]	105.2% { 110.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2767175	(10.53 , N/A) (N/A , 0.00 , N/A)	1685.9	N/A	20.8152 [20.0000]	104.1% { 109.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1331354	(5.41 , N/A) (N/A , -0.01 , N/A)	2139.4	N/A	8.3202 [8.0000]	104.0% { 103.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (7)
Acquired: 2023/04/12 - 11:29

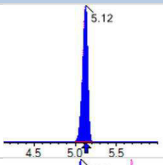
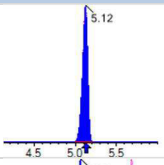
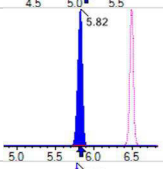
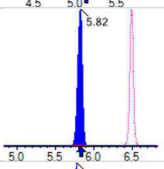
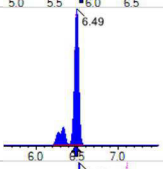
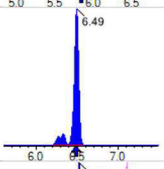
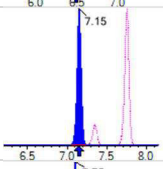
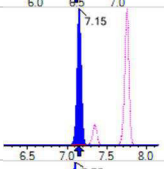
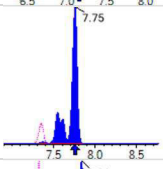
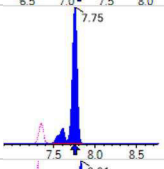
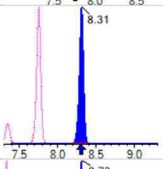
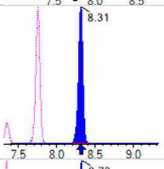
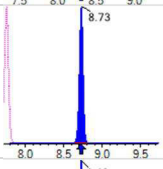
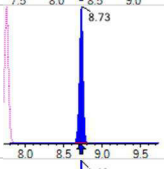
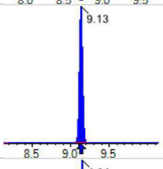
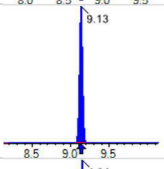
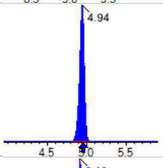
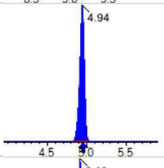
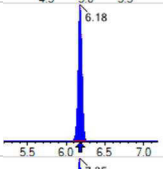
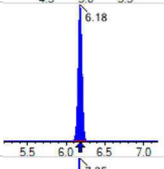
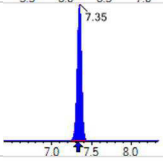
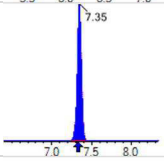
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 8336477	(3.46 , 1.00) (0.00 , N/A , 0.0)	185.2	N/A 0.0 0.0	77.5081	N/A			
PFPeA	(263.0 / 219.0) 8260323 (263.0 / 69.0) 94784	(4.32 , 1.00) (0.00 , N/A , 0.0)	5456.2 1120.3	0.0115 87.4 87.4	36.6681	N/A			
PFHxA	(313.0 / 269.0) 5064878 (313.0 / 119.0) 502226	(5.17 , 1.00) (0.00 , N/A , -0.2)	3580.5 4900.8	0.0992 90.9 90.9	17.8719	N/A			
PFHpA	(363.0 / 319.0) 4273805 (363.0 / 169.0) 1275791	(5.80 , 1.00) (0.00 , N/A , 0.0)	13756.7 13930805.7	0.2985 97.8 97.8	19.4796	N/A			
PFOA	(413.0 / 369.0) 5838903 (413.0 / 169.0) 1756290	(6.41 , 1.00) (0.00 , N/A , 0.0)	3880.2 7917.2	0.3008 96.1 96.1	20.3857	N/A			
PFNA	(463.0 / 419.0) 5161951 (463.0 / 169.0) 1080800	(7.02 , 1.00) (0.00 , N/A , 0.0)	21109.8 962533.4	0.2094 98.1 98.1	19.3841	N/A			
PFDA	(513.0 / 469.0) 6845341 (513.0 / 169.0) 733876	(7.59 , 1.00) (0.00 , N/A , 0.0)	3589.3 2024.7	0.1072 93.5 93.5	19.8928	N/A			
PFUnA	(563.0 / 519.0) 5643650 (563.0 / 169.0) 627147	(8.12 , 1.00) (0.00 , N/A , -0.1)	3997.1 1946.7	0.1111 94.0 94.0	19.5265	N/A			
PFDoA	(613.0 / 569.0) 5198209 (613.0 / 169.0) 775799	(8.59 , 1.00) (0.00 , N/A , 0.0)	5115.3 4254.9	0.1492 87.1 87.1	19.5027	N/A			
PFTrDA	(663.0 / 619.0) 4238811 (663.0 / 169.0) 1021680	(8.87 , 1.03) (N/A , 0.00 , 0.0)	4659.7 3295.6	0.2410 97.3 97.3	17.4548	N/A			
PFTeDA	(713.0 / 669.0) 4874708 (713.0 / 169.0) 932034	(9.06 , 1.00) (0.00 , N/A , 0.0)	3583.2 2098.6	0.1912 94.9 94.9	20.0109	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (7)
Acquired: 2023/04/12 - 11:29

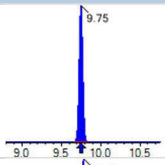
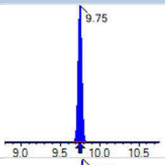
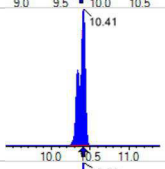
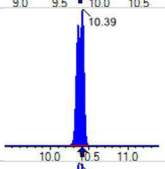
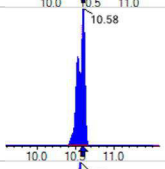
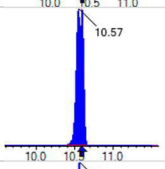
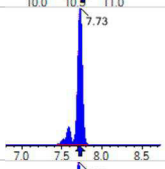
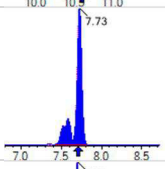
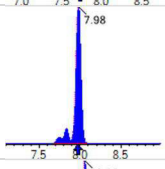
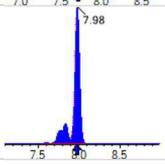
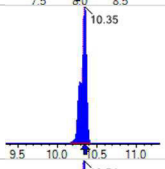
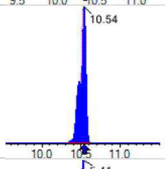
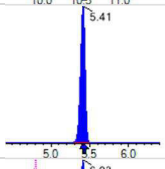
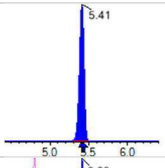
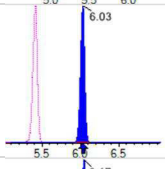
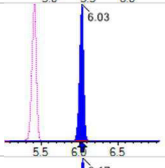
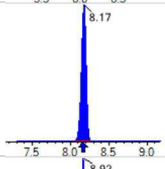
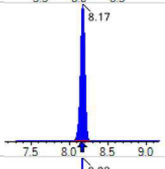
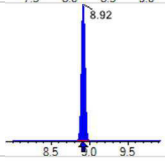
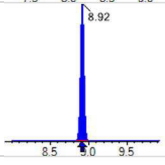
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 8283412 (299.0 / 99.0) 5071726	(5.12 , 1.00) (0.00 , N/A , 0.0)	9218.1 6552.7	0.6123 95.2 95.2	16.8445	N/A			
PFPeS	(349.0 / 80.0) 13816887 (349.0 / 99.0) 5092743	(5.82 , 0.90) (N/A , 0.00 , 0.1)	15484.1 48665.6	0.3686 108.7 108.7	16.8822	N/A			
PFHxS	(399.0 / 80.0) 11758110 (399.0 / 99.0) 4009199	(6.49 , 1.00) (0.00 , N/A , 0.1)	5493.3 43003.0	0.3410 98.5 98.5	16.8602	N/A			
PFHpS	(449.0 / 80.0) 12198707 (449.0 / 99.0) 3387381	(7.15 , 0.92) (N/A , 0.01 , 0.0)	31409.0 2917268.1	0.2777 100.1 100.1	18.0043	N/A			
PFOS	(499.0 / 80.0) 16844839 (499.0 / 99.0) 3684906	(7.75 , 1.00) (0.00 , N/A , 0.1)	1632.8 2793.5	0.2188 97.8 97.8	17.7151	N/A			
PFNS	(549.0 / 80.0) 16638860 (549.0 / 99.0) 4066362	(8.31 , 1.07) (N/A , 0.01 , 0.1)	15910.3 24324.2	0.2444 101.0 101.0	18.7248	N/A			
PFDS	(599.0 / 80.0) 17839167 (599.0 / 99.0) 4184357	(8.73 , 1.13) (N/A , 0.01 , -0.1)	9920.8 8265.6	0.2346 104.7 104.7	17.7586	N/A			
PFDoS	(699.0 / 80.0) 14294903 (699.0 / 99.0) 3136142	(9.13 , 1.18) (N/A , 0.00 , 0.0)	5988.7 5189.4	0.2194 91.7 91.7	18.4992	N/A			
4:2FTS	(327.0 / 307.0) 14326445 (327.0 / 81.0) 9176167	(4.94 , 1.00) (0.00 , N/A , -0.1)	2929.1 2812.5	0.6405 94.2 94.2	74.7736	N/A			
6:2FTS	(427.0 / 407.0) 9247507 (427.0 / 81.0) 6271965	(6.18 , 1.00) (0.00 , N/A , 0.0)	4369.6 4954.7	0.6782 96.3 96.3	75.6210	N/A			
8:2FTS	(527.0 / 507.0) 9903315 (527.0 / 81.0) 7095052	(7.35 , 1.00) (0.00 , N/A , 0.0)	4849.8 5230.5	0.7164 106.0 106.0	67.3664	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (7)
Acquired: 2023/04/12 - 11:29

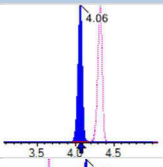
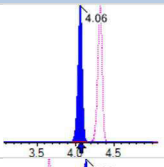
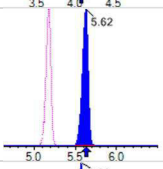
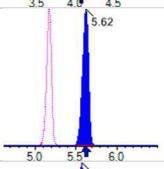
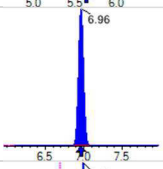
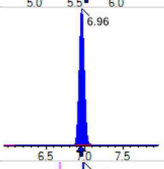
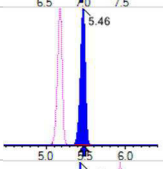
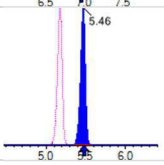
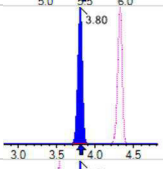
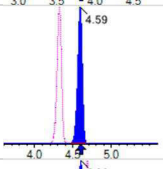
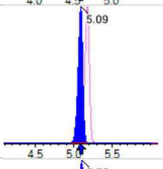
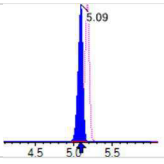
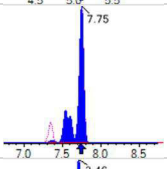
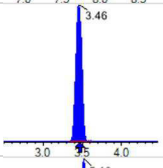
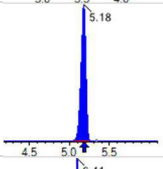
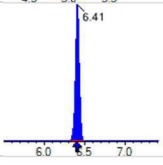
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 22092534 (498.0 / 478.0) 551602	(9.75 , 1.00) (0.00 , N/A , 0.0)	5662.6 2649.6	0.0250 100.8 100.8	18.9609	N/A			
NMeFOSA	(512.0 / 219.0) 18248564 (512.0 / 169.0) 15924945	(10.41 , 1.00) (0.00 , N/A , 1.2)	6349.8 6110.6	0.8727 100.6 100.6	73.3781	N/A			
NEtFOSA	(526.0 / 219.0) 19086443 (526.0 / 169.0) 24056062	(10.58 , 1.00) (-0.01 , N/A , 0.8)	16689.6 12474.3	1.2604 100.8 100.8	78.0966	N/A			
NMeFOSAA	(570.0 / 419.0) 2841134 (570.0 / 483.0) 1296379	(7.73 , 1.00) (0.01 , N/A , 0.0)	2989.9 532.9	0.4563 98.5 98.5	19.2477	N/A			
NEtFOSAA	(584.0 / 419.0) 2532777 (584.0 / 526.0) 1488262	(7.98 , 1.00) (0.01 , N/A , 0.1)	1055542.4 2064.7	0.5876 96.3 96.3	19.6504	N/A			
NMeFOSE	(616.0 / 59.0) 8237073	(10.35 , 1.00) (0.01 , N/A , 0.0)	4020.5	N/A 0.0 0.0	79.1740	N/A			
NEtFOSE	(630.0 / 59.0) 9822114	(10.54 , 1.00) (0.01 , N/A , 0.0)	1797.2	N/A 0.0 0.0	77.7479	N/A			
HFPO-DA	(285.0 / 169.0) 5311000 (285.0 / 185.0) 14102856	(5.41 , 1.00) (0.00 , N/A , 0.1)	2367.6 5852.9	2.6554 102.1 102.1	39.3901	N/A			
ADONA	(377.0 / 85.0) 16923004 (377.0 / 251.0) 1678674	(6.03 , 1.11) (N/A , 0.00 , 0.0)	4741.7 3339.3	0.0992 99.9 99.9	35.1286	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 46181194 (533.0 / 353.0) 15802731	(8.17 , 1.51) (N/A , 0.01 , 0.1)	4520.4 4474.6	0.3422 117.8 117.8	31.8403	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 27817968 (633.0 / 453.0) 10177466	(8.92 , 1.65) (N/A , 0.01 , 0.0)	5331.1 3419.7	0.3659 109.2 109.2	32.4473	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (7)
Acquired: 2023/04/12 - 11:29

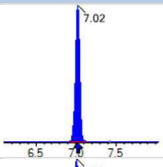
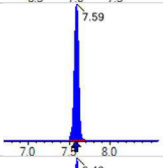
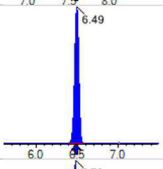
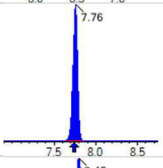
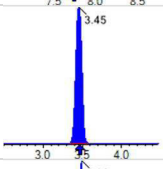
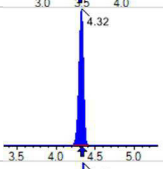
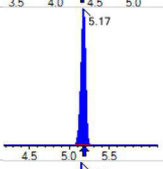
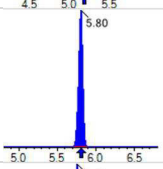
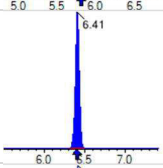
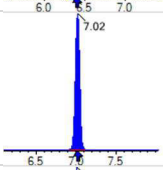
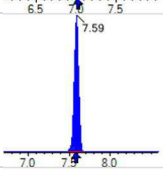
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 649808 (241.0 / 117.0) 1026401	(4.06 , 0.94) (N/A , 0.00 , 0.0)	71.6 72.5	1.5795 95.7 95.7	78.7203	N/A			
5:3FTCA	(341.0 / 236.7) 3655455 (341.0 / 217.0) 6109198	(5.62 , 1.09) (N/A , 0.00 , 0.0)	1563.8 2458.7	1.6713 106.5 106.5	82.0668	N/A			
7:3FTCA	(441.0 / 317.0) 6145522 (441.0 / 337.0) 5192551	(6.96 , 1.35) (N/A , 0.00 , 0.0)	2327.4 2537.3	0.8449 98.1 98.1	78.7873	N/A			
PFEESA	(315.0 / 135.0) 11387603 (315.0 / 83.0) 2784269	(5.46 , 1.06) (N/A , 0.00 , -0.1)	3682.2 3132.5	0.2445 100.2 100.2	31.9435	N/A			
PFMPA	(229.0 / 85.0) 1799448	(3.80 , 0.88) (N/A , 0.00 , 0.0)	4811.3	N/A 0.0 0.0	37.5100	N/A			
PFMBA	(279.0 / 85.0) 6639306	(4.59 , 1.06) (N/A , -0.01 , 0.0)	4214.6	N/A 0.0 0.0	37.7981	N/A			
NFDHA	(295.0 / 201.0) 5446018 (295.0 / 85.0) 5515819	(5.09 , 0.98) (N/A , 0.00 , -0.1)	3780.8 3759.8	1.0128 103.4 103.4	37.5958	N/A			
TDCA	(499.0 / 80.0) 14309027	(7.75 , 1.00) (N/A , 0.01 , 0.0)	43131.7	N/A 0.0 0.0	17.4838	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 120305	(3.46 , N/A) (N/A , 0.00 , N/A)	1389.9	N/A	0.9868 [1.0000]	98.7% { 100.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 230376	(5.18 , N/A) (N/A , 0.00 , N/A)	1030.0	N/A	1.1358 [1.0000]	113.6% { 117.1% }			
13C4_PFOA_IIS	(417.0 / 372.0) 331042	(6.41 , N/A) (N/A , 0.01 , N/A)	2168.6	N/A	1.0417 [1.0000]	104.2% { 102.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (7)
Acquired: 2023/04/12 - 11:29

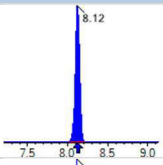
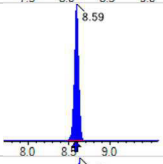
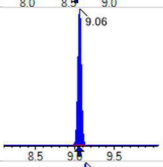
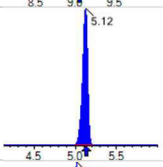
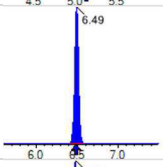
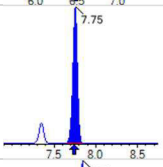
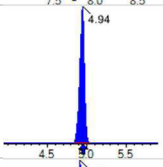
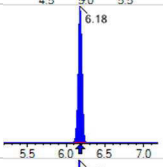
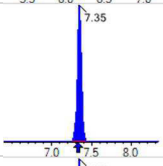
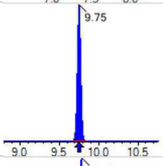
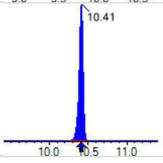
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 325196	(7.02 , N/A) (N/A , 0.01 , N/A)	1975.4	N/A	1.0715 [1.0000]	107.1% { 105.9% }			
13C2_PFDA_IIS	(515.0 / 470.1) 380308	(7.59 , N/A) (N/A , 0.01 , N/A)	6855.5	N/A	1.1721 [1.0000]	117.2% { 124.2% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 479774	(6.49 , N/A) (N/A , 0.01 , N/A)	4038.7	N/A	1.0713 [1.0000]	107.1% { 116.2% }			
13C4_PFOS_IIS	(503.0 / 79.9) 684640	(7.76 , N/A) (N/A , 0.01 , N/A)	1924.4	N/A	1.0067 [1.0000]	100.7% { 105.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 984695	(3.45 , N/A) (N/A , 0.00 , N/A)	4342.9	N/A	7.7198 [8.0000]	96.5% { 94.2% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 937654	(4.32 , N/A) (N/A , -0.01 , N/A)	2893.3	N/A	3.6336 [4.0000]	90.8% { 104.5% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 587565	(5.17 , N/A) (N/A , 0.00 , N/A)	2579.2	N/A	1.7994 [2.0000]	90.0% { 100.5% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 509049	(5.80 , N/A) (N/A , 0.00 , N/A)	1974.5	N/A	1.7848 [2.0000]	89.2% { 103.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 607547	(6.41 , N/A) (N/A , 0.01 , N/A)	2511.5	N/A	1.8594 [2.0000]	93.0% { 98.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 288707	(7.02 , N/A) (N/A , 0.01 , N/A)	6859.1	N/A	0.9449 [1.0000]	94.5% { 96.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 366102	(7.59 , N/A) (N/A , 0.01 , N/A)	5013.4	N/A	0.8581 [1.0000]	85.8% { 101.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (7)
Acquired: 2023/04/12 - 11:29

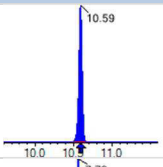
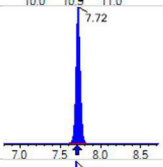
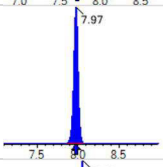
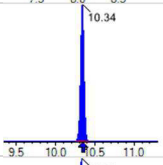
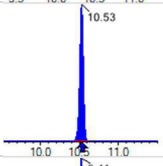
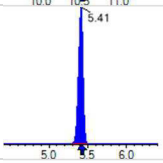
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 328492	(8.12 , N/A) (N/A , 0.01 , N/A)	3350.4	N/A	0.8294 [1.0000]	82.9% { 91.1% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 293877	(8.59 , N/A) (N/A , 0.00 , N/A)	1371.9	N/A	0.8666 [1.0000]	86.7% { 102.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 265800	(9.06 , N/A) (N/A , 0.00 , N/A)	1468.3	N/A	0.8312 [1.0000]	83.1% { 88.2% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1378865	(5.12 , N/A) (N/A , 0.00 , N/A)	2284.4	N/A	1.8306 [2.0000]	91.5% { 98.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 887134	(6.49 , N/A) (N/A , 0.01 , N/A)	2664.4	N/A	2.0060 [2.0000]	100.3% { 110.1% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1680510	(7.75 , N/A) (N/A , 0.01 , N/A)	1000.0	N/A	2.0261 [2.0000]	101.3% { 100.8% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 258089	(4.94 , N/A) (N/A , 0.00 , N/A)	1329.6	N/A	3.8043 [4.0000]	95.1% { 103.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 285835	(6.18 , N/A) (N/A , 0.00 , N/A)	2171.4	N/A	3.6915 [4.0000]	92.3% { 97.6% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 416777	(7.35 , N/A) (N/A , 0.02 , N/A)	1617.3	N/A	4.0658 [4.0000]	101.6% { 116.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2659657	(9.75 , N/A) (N/A , 0.00 , N/A)	3807.8	N/A	1.9752 [2.0000]	98.8% { 102.4% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 599448	(10.41 , N/A) (N/A , 0.00 , N/A)	2321.2	N/A	2.0863 [2.0000]	104.3% { 115.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (7)
Acquired: 2023/04/12 - 11:29

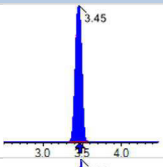
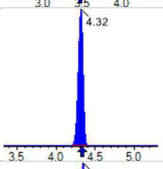
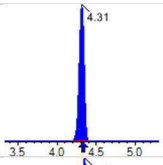
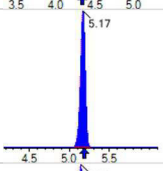
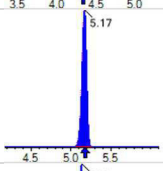
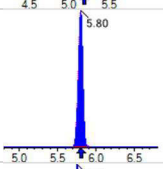
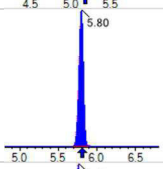
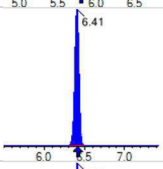
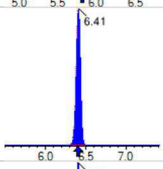
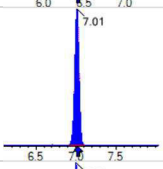
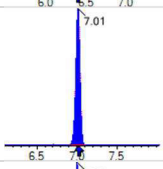
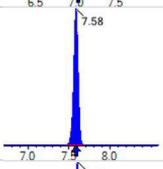
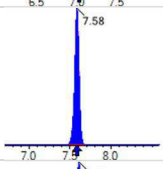
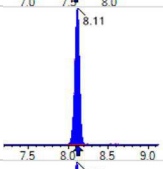
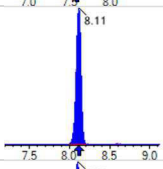
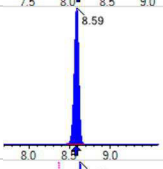
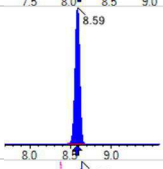
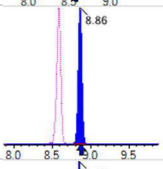
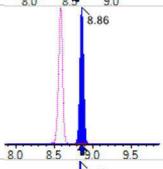
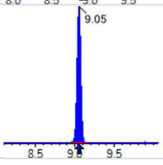
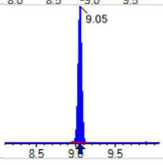
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 465273	(10.59 , N/A) (N/A , 0.00 , N/A)	2873.0	N/A	1.9626 [2.0000]	98.1% { 101.1% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 694633	(7.72 , N/A) (N/A , 0.01 , N/A)	1651.1	N/A	3.9074 [4.0000]	97.7% { 103.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 582831	(7.97 , N/A) (N/A , 0.01 , N/A)	11176.0	N/A	3.9970 [4.0000]	99.9% { 108.6% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1905861	(10.34 , N/A) (N/A , 0.00 , N/A)	1562.5	N/A	19.9795 [20.0000]	99.9% { 99.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2565618	(10.53 , N/A) (N/A , 0.00 , N/A)	1500.6	N/A	20.3495 [20.0000]	101.7% { 101.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1277261	(5.41 , N/A) (N/A , 0.00 , N/A)	2463.5	N/A	6.9336 [8.0000]	86.7% { 99.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (8)
Acquired: 2023/04/12 - 11:42

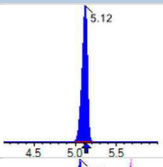
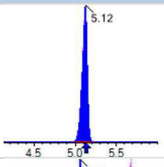
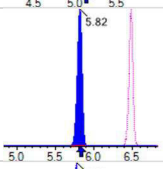
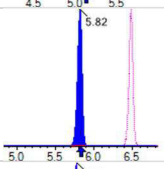
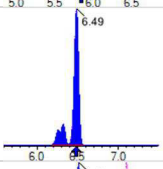
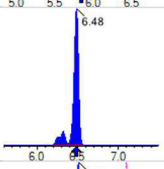
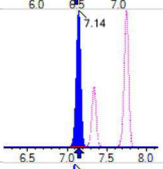
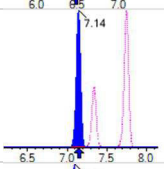
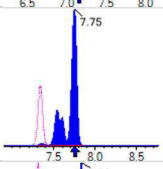
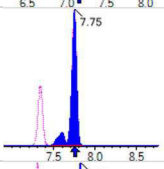
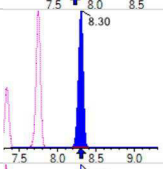
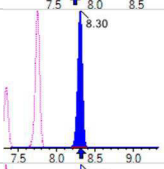
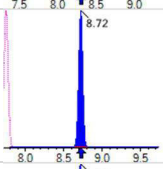
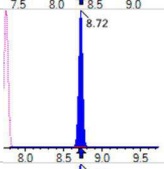
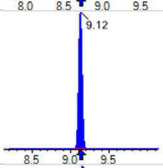
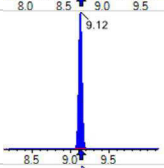
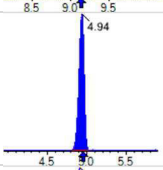
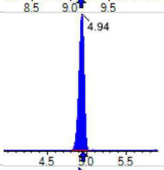
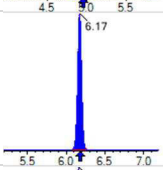
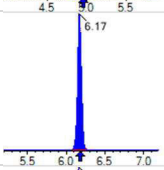
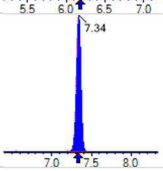
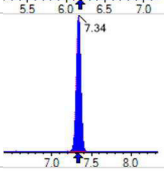
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 16321173	(3.45 , 1.00) (0.00 , N/A , 0.0)	191.6	N/A 0.0 0.0	203.9263	N/A			
PFPeA	(263.0 / 219.0) 18226887 (263.0 / 69.0) 197084	(4.32 , 1.00) (0.00 , N/A , 0.0)	7548.9 1435.2	0.0108 82.4 82.4	98.5734	N/A			
PFHxA	(313.0 / 269.0) 11515186 (313.0 / 119.0) 1190537	(5.17 , 1.00) (0.00 , N/A , 0.0)	4155.4 6168.8	0.1034 94.7 94.7	47.5796	N/A			
PFHpA	(363.0 / 319.0) 9136652 (363.0 / 169.0) 2962501	(5.80 , 1.00) (0.00 , N/A , 0.0)	9015.7 36945.3	0.3242 106.2 106.2	49.7999	N/A			
PFOA	(413.0 / 369.0) 13317452 (413.0 / 169.0) 4336194	(6.41 , 1.00) (0.00 , N/A , -0.1)	6275.8 14471.8	0.3256 104.0 104.0	47.4783	N/A			
PFNA	(463.0 / 419.0) 11914344 (463.0 / 169.0) 2665706	(7.01 , 1.00) (0.00 , N/A , 0.0)	14124.1 300150.1	0.2237 104.8 104.8	52.6607	N/A			
PFDA	(513.0 / 469.0) 15891316 (513.0 / 169.0) 1735783	(7.58 , 1.00) (0.00 , N/A , 0.0)	4064.0 4229.6	0.1092 95.3 95.3	50.2531	N/A			
PFUnA	(563.0 / 519.0) 12418738 (563.0 / 169.0) 1510010	(8.11 , 1.00) (0.00 , N/A , 0.0)	4990.8 3197.0	0.1216 102.9 102.9	48.9769	N/A			
PFDoA	(613.0 / 569.0) 11309048 (613.0 / 169.0) 1800808	(8.59 , 1.00) (0.00 , N/A , 0.1)	4094.1 2977.5	0.1592 92.9 92.9	44.9087	N/A			
PFTrDA	(663.0 / 619.0) 9728934 (663.0 / 169.0) 2364044	(8.86 , 1.03) (N/A , 0.00 , 0.1)	5136.0 3419.5	0.2430 98.1 98.1	42.4032	N/A			
PFTeDA	(713.0 / 669.0) 10296548 (713.0 / 169.0) 2084991	(9.05 , 1.00) (0.00 , N/A , 0.0)	3951.8 2641.5	0.2025 100.5 100.5	47.5509	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (8)
Acquired: 2023/04/12 - 11:42

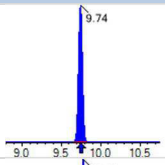
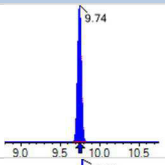
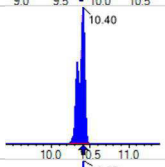
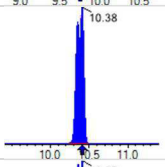
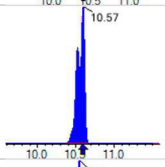
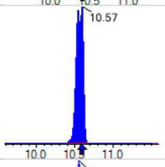
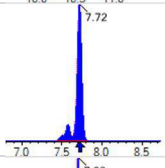
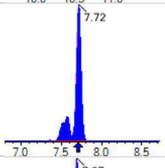
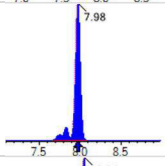
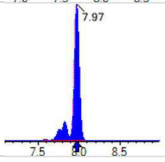
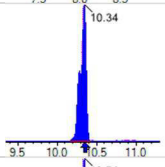
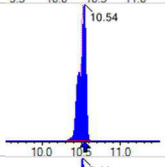
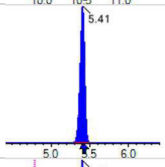
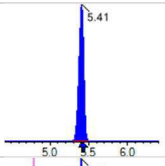
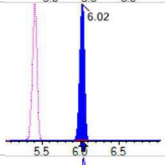
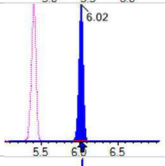
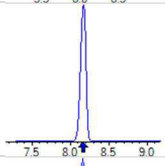
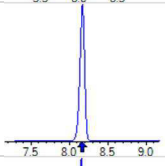
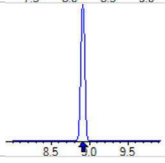
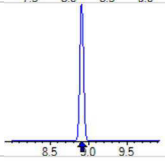
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 18239399 (299.0 / 99.0) 11465337	(5.12 , 1.00) (0.00 , N/A , 0.0)	5763.2 6628.5	0.6286 97.8 97.8	42.5124	N/A			
PFPeS	(349.0 / 80.0) 29745667 (349.0 / 99.0) 10956005	(5.82 , 0.90) (N/A , -0.01 , -0.1)	16147.3 359335.2	0.3683 108.6 108.6	43.3808	N/A			
PFHxS	(399.0 / 80.0) 27539282 (399.0 / 99.0) 9799521	(6.49 , 1.00) (0.00 , N/A , 0.1)	6881.9 20069.1	0.3558 102.7 102.7	47.1340	N/A			
PFHpS	(449.0 / 80.0) 26711444 (449.0 / 99.0) 8223764	(7.14 , 0.92) (N/A , 0.00 , 0.1)	19905.0 491917.4	0.3079 111.0 111.0	45.6020	N/A			
PFOS	(499.0 / 80.0) 37859811 (499.0 / 99.0) 8657663	(7.75 , 1.00) (0.00 , N/A , 0.0)	2124.4 3666.0	0.2287 102.2 102.2	46.0554	N/A			
PFNS	(549.0 / 80.0) 35795495 (549.0 / 99.0) 9560953	(8.30 , 1.07) (N/A , 0.00 , 0.0)	15663.1 49923.1	0.2671 110.4 110.4	46.5957	N/A			
PFDS	(599.0 / 80.0) 38204070 (599.0 / 99.0) 9447079	(8.72 , 1.13) (N/A , 0.00 , 0.0)	9927.8 12158.0	0.2473 110.4 110.4	43.9915	N/A			
PFDoS	(699.0 / 80.0) 29891551 (699.0 / 99.0) 7401855	(9.12 , 1.18) (N/A , 0.00 , 0.0)	5015.0 5112.7	0.2476 103.5 103.5	44.7450	N/A			
4:2FTS	(327.0 / 307.0) 31263132 (327.0 / 81.0) 20030483	(4.94 , 1.00) (0.00 , N/A , 0.0)	4338.1 4256.3	0.6407 94.2 94.2	160.7142	N/A			
6:2FTS	(427.0 / 407.0) 21293366 (427.0 / 81.0) 14924778	(6.17 , 1.00) (0.00 , N/A , 0.1)	4611.8 5756.9	0.7009 99.5 99.5	162.2370	N/A			
8:2FTS	(527.0 / 507.0) 25257031 (527.0 / 81.0) 17293685	(7.34 , 1.00) (0.00 , N/A , 0.1)	4058.1 5579.9	0.6847 101.3 101.3	157.7088	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (8)
Acquired: 2023/04/12 - 11:42

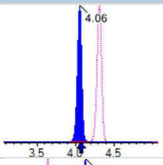
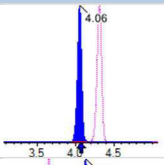
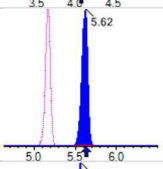
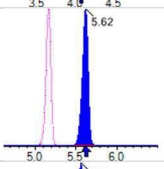
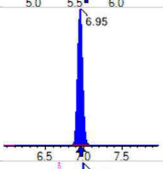
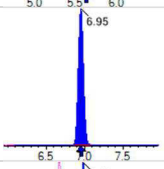
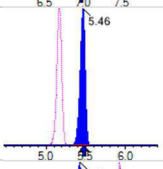
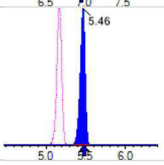
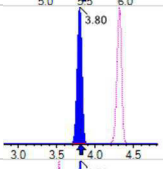
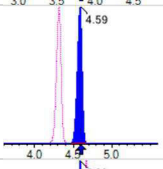
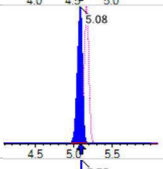
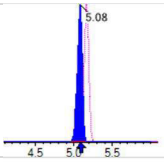
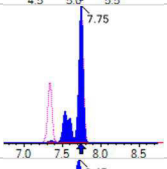
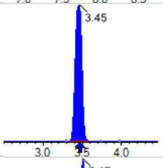
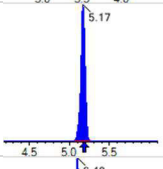
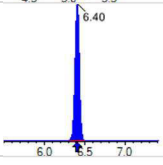
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 43243955 (498.0 / 478.0) 1221795	(9.74 , 1.00) (0.00 , N/A , 0.0)	8017.8 4022.6	0.0283 114.1 114.1	43.3981	N/A			
NMeFOSA	(512.0 / 219.0) 40951608 (512.0 / 169.0) 35450093	(10.40 , 1.00) (0.00 , N/A , 1.1)	5047.6 4261.8	0.8657 99.8 99.8	154.7837	N/A			
NEtFOSA	(526.0 / 219.0) 44714517 (526.0 / 169.0) 53189920	(10.57 , 1.00) (-0.01 , N/A , 0.5)	13606.5 15635.1	1.1895 95.1 95.1	184.6525	N/A			
NMeFOSAA	(570.0 / 419.0) 6779930 (570.0 / 483.0) 3161782	(7.72 , 1.00) (0.00 , N/A , 0.1)	3644.8 716.1	0.4663 100.7 100.7	48.1148	N/A			
NEtFOSAA	(584.0 / 419.0) 6528275 (584.0 / 526.0) 3831329	(7.98 , 1.00) (0.01 , N/A , 0.1)	311331.5 11072.7	0.5869 96.1 96.1	48.1177	N/A			
NMeFOSE	(616.0 / 59.0) 18243246	(10.34 , 1.00) (0.01 , N/A , 0.0)	4114.9	N/A 0.0 0.0	206.7715	N/A			
NEtFOSE	(630.0 / 59.0) 21941729	(10.54 , 1.00) (0.01 , N/A , 0.0)	1658.6	N/A 0.0 0.0	206.7886	N/A			
HFPO-DA	(285.0 / 169.0) 11416105 (285.0 / 185.0) 29884988	(5.41 , 1.00) (0.00 , N/A , 0.0)	3084.4 4366.0	2.6178 100.6 100.6	93.3000	N/A			
ADONA	(377.0 / 85.0) 35388242 (377.0 / 251.0) 3935726	(6.02 , 1.11) (N/A , 0.00 , 0.1)	4655.9 4958.3	0.1112 112.0 112.0	80.9461	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (8)
Acquired: 2023/04/12 - 11:42

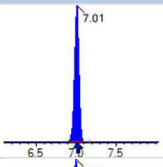
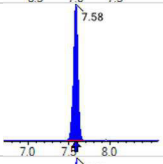
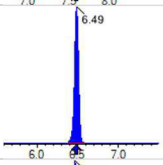
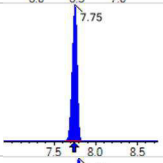
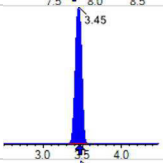
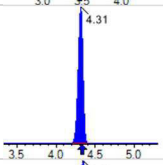
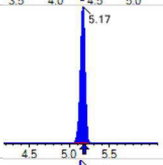
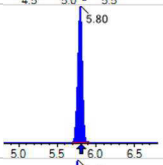
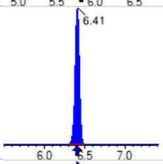
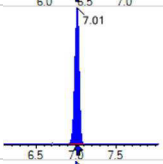
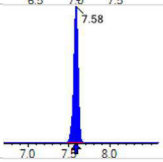
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 1562319 (241.0 / 117.0) 2743207	(4.06 , 0.94) (N/A , -0.01 , 0.0)	80.3 72.9	1.7559 106.3 106.3	230.5826	N/A			
5:3FTCA	(341.0 / 236.7) 9396313 (341.0 / 217.0) 15783180	(5.62 , 1.09) (N/A , -0.01 , -0.2)	2295.2 2368.7	1.6797 107.1 107.1	247.0201	N/A			
7:3FTCA	(441.0 / 317.0) 15787387 (441.0 / 337.0) 12934620	(6.95 , 1.35) (N/A , -0.01 , 0.0)	2636.8 3094.1	0.8193 95.1 95.1	237.0046	N/A			
PFEESA	(315.0 / 135.0) 24484793 (315.0 / 83.0) 6363930	(5.46 , 1.06) (N/A , 0.00 , 0.0)	2433.8 3522.2	0.2599 106.5 106.5	80.4258	N/A			
PFMPA	(229.0 / 85.0) 3770161	(3.80 , 0.88) (N/A , -0.01 , 0.0)	6262.1	N/A 0.0 0.0	95.7464	N/A			
PFMBA	(279.0 / 85.0) 14289945	(4.59 , 1.06) (N/A , -0.02 , 0.0)	5400.3	N/A 0.0 0.0	99.1137	N/A			
NFDHA	(295.0 / 201.0) 11252031 (295.0 / 85.0) 11921655	(5.08 , 0.98) (N/A , -0.01 , 0.0)	3556.5 4719.0	1.0595 108.2 108.2	90.9577	N/A			
TDCA	(499.0 / 80.0) 34657578	(7.75 , 1.00) (N/A , 0.00 , 0.0)	63027.6	N/A 0.0 0.0	48.9834	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 89991	(3.45 , N/A) (N/A , -0.01 , N/A)	1043.6	N/A	0.7382 [1.0000]	73.8% { 75.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 187502	(5.17 , N/A) (N/A , 0.00 , N/A)	7610.8	N/A	0.9245 [1.0000]	92.4% { 95.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 284262	(6.40 , N/A) (N/A , 0.00 , N/A)	3062.5	N/A	0.8945 [1.0000]	89.4% { 88.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (8)
Acquired: 2023/04/12 - 11:42

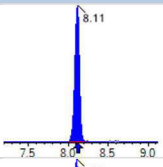
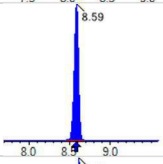
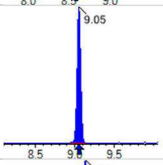
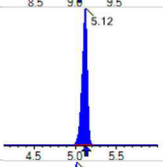
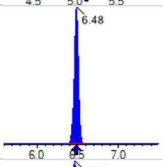
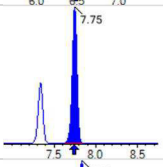
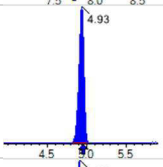
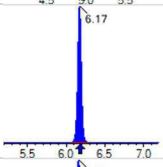
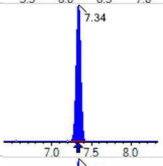
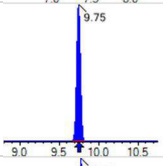
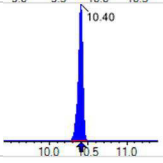
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 298152	(7.01 , N/A) (N/A , 0.00 , N/A)	5700.3	N/A	0.9824 [1.0000]	98.2% { 97.1% }			
13C2_PFDA_IIS	(515.0 / 470.1) 303266	(7.58 , N/A) (N/A , 0.00 , N/A)	1727.4	N/A	0.9347 [1.0000]	93.5% { 99.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 440633	(6.49 , N/A) (N/A , 0.00 , N/A)	1828.6	N/A	0.9839 [1.0000]	98.4% { 106.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 611168	(7.75 , N/A) (N/A , 0.01 , N/A)	1457.8	N/A	0.8987 [1.0000]	89.9% { 94.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 732731	(3.45 , N/A) (N/A , -0.01 , N/A)	3635.0	N/A	7.6796 [8.0000]	96.0% { 70.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 769639	(4.31 , N/A) (N/A , -0.02 , N/A)	3990.1	N/A	3.6645 [4.0000]	91.6% { 85.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 501773	(5.17 , N/A) (N/A , -0.01 , N/A)	1752.1	N/A	1.8880 [2.0000]	94.4% { 85.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 425681	(5.80 , N/A) (N/A , -0.01 , N/A)	2541.8	N/A	1.8337 [2.0000]	91.7% { 86.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 594978	(6.41 , N/A) (N/A , 0.00 , N/A)	3583.0	N/A	2.1206 [2.0000]	106.0% { 96.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 245286	(7.01 , N/A) (N/A , 0.00 , N/A)	5690.2	N/A	0.8757 [1.0000]	87.6% { 81.9% }			
13C6_PFDA_EIS	(519.0 / 474.0) 336433	(7.58 , N/A) (N/A , 0.00 , N/A)	9233.6	N/A	0.9889 [1.0000]	98.9% { 93.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (8)
Acquired: 2023/04/12 - 11:42

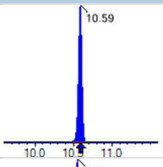
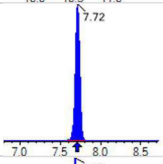
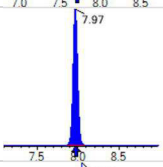
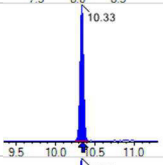
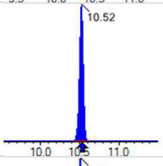
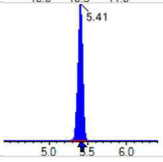
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 288187	(8.11 , N/A) (N/A , 0.00 , N/A)	1054.5	N/A	0.9125 [1.0000]	91.3% { 79.9% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 277653	(8.59 , N/A) (N/A , 0.00 , N/A)	2426.3	N/A	1.0268 [1.0000]	102.7% { 96.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 236268	(9.05 , N/A) (N/A , 0.00 , N/A)	1369.7	N/A	0.9266 [1.0000]	92.7% { 78.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1202997	(5.12 , N/A) (N/A , -0.01 , N/A)	2531.8	N/A	1.7390 [2.0000]	86.9% { 86.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 743248	(6.48 , N/A) (N/A , 0.00 , N/A)	2303.6	N/A	1.8300 [2.0000]	91.5% { 92.2% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1452835	(7.75 , N/A) (N/A , 0.00 , N/A)	721.5	N/A	1.9621 [2.0000]	98.1% { 87.2% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 262034	(4.93 , N/A) (N/A , -0.01 , N/A)	1063.2	N/A	4.2055 [4.0000]	105.1% { 105.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 306781	(6.17 , N/A) (N/A , -0.01 , N/A)	1739.2	N/A	4.3140 [4.0000]	107.8% { 104.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 454039	(7.34 , N/A) (N/A , 0.00 , N/A)	1520.3	N/A	4.8227 [4.0000]	120.6% { 126.5% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2274543	(9.75 , N/A) (N/A , -0.01 , N/A)	3450.8	N/A	1.8923 [2.0000]	94.6% { 87.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 637727	(10.40 , N/A) (N/A , 0.00 , N/A)	2157.5	N/A	2.4863 [2.0000]	124.3% { 122.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (8)
Acquired: 2023/04/12 - 11:42

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 461008	(10.59 , N/A) (N/A , 0.00 , N/A)	2337.9	N/A	2.1784 [2.0000]	108.9% { 100.2% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 663116	(7.72 , N/A) (N/A , 0.00 , N/A)	1135.0	N/A	4.1785 [4.0000]	104.5% { 98.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 613495	(7.97 , N/A) (N/A , 0.00 , N/A)	15031.5	N/A	4.7131 [4.0000]	117.8% { 114.3% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1616264	(10.33 , N/A) (N/A , -0.01 , N/A)	1147.0	N/A	18.9805 [20.0000]	94.9% { 84.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2154865	(10.52 , N/A) (N/A , 0.00 , N/A)	1496.1	N/A	19.1462 [20.0000]	95.7% { 85.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1159115	(5.41 , N/A) (N/A , -0.01 , N/A)	1895.6	N/A	7.7310 [8.0000]	96.6% { 89.8% }			

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315014
Laboratory ID: SC01442-SCV1
Sequence: SC01442
Standard ID: 23C0366

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	8.00	8.51	6.4	30.00
PFPEA	4.00	4.16	4.0	30.00
PFHXA	2.00	2.07	3.7	30.00
PFHPA	2.00	2.09	4.4	30.00
PFOA	2.00	2.23	11.7	30.00
PFNA	2.00	2.23	11.4	30.00
PFDA	2.00	2.08	4.1	30.00
PFUnA	2.00	2.09	4.5	30.00
PFDOA	2.00	2.07	3.3	30.00
PFTRDA	2.00	2.28	13.9	30.00
PFTEDA	2.00	2.05	2.7	30.00
PFBS	1.77	1.91	7.8	30.00
PFPES	1.88	2.09	11.4	30.00
PFHXS	1.83	1.84	0.8	30.00
PFHPS	1.91	1.99	3.9	30.00
PFOS	1.86	1.96	5.2	30.00
PFNS	1.92	2.10	9.3	30.00
PFDS	1.93	2.10	8.8	30.00
PFDOS	1.94	2.13	9.6	30.00
4:2FTS	7.50	8.80	17.4	30.00
6:2FTS	7.60	8.51	12.0	30.00
8:2FTS	7.68	8.82	14.9	30.00
PFOSA	2.00	2.17	8.7	30.00
NMeFOSA	8.00	8.84	10.5	30.00
NEtFOSA	8.00	7.19	-10.1	30.00
NMeFOSAA	2.00	2.17	8.4	30.00
NEtFOSAA	2.00	2.18	8.8	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315014
Laboratory ID: SC01442-SCV1
Sequence: SC01442
Standard ID: 23C0366

NMeFOSE	8.00	8.70	8.7	30.00
NEtFOSE	8.00	8.88	11.0	30.00
HFPO-DA	4.00	4.28	6.9	30.00
ADONA	3.78	4.22	11.7	30.00
PFEESA	3.56	4.11	15.4	30.00
PFMPA	4.00	4.27	6.8	30.00
PFMBA	4.00	4.13	3.1	30.00
NFDHA	4.00	4.76	18.9	30.00
9CL-PF3ONS	3.74	4.04	8.0	30.00
11CL-PF3OUDS	3.78	4.33	14.5	30.00
3:3FTCA	8.00	7.90	-1.2	30.00
5:3FTCA	8.00	8.39	4.9	30.00
7:3FTCA	8.00	8.51	6.3	30.00
13C4-PFBA	8.00	7.37	-7.8	30.00
13C5-PFPEA	4.00	3.77	-5.7	30.00
13C5-PFHXA	2.00	1.75	-12.6	30.00
13C4-PFHPA	2.00	1.76	-11.9	30.00
13C8-PFOA	2.00	1.80	-10.0	30.00
13C9-PFNA	1.00	0.956	-4.4	30.00
13C6-PFDA	1.00	0.965	-3.5	30.00
13C7-PFUnA	1.00	0.967	-3.3	30.00
13C2-PFDOA	1.00	0.923	-7.7	30.00
13C2-PFTEDA	1.00	0.980	-2.0	30.00
13C3-PFBS	2.00	1.78	-10.9	30.00
13C3-PFHXS	2.00	1.83	-8.4	30.00
13C8-PFOS	2.00	1.77	-11.5	30.00
13C2-4:2FTS	4.00	3.02	-24.6	30.00
13C2-6:2FTS	4.00	3.38	-15.5	30.00
13C2-8:2FTS	4.00	3.05	-23.7	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315014
Laboratory ID: SC01442-SCV1
Sequence: SC01442
Standard ID: 23C0366

13C8-PFOSA	2.00	1.89	-5.7	30.00
D3-NMEFOSA	2.00	1.79	-10.6	30.00
D5-NETFOSA	2.00	1.86	-7.2	30.00
D3-NMEFOSAA	4.00	3.40	-15.0	30.00
D5-NETFOSAA	4.00	3.28	-18.0	30.00
D7-NMEFOSE	20.0	19.5	-2.5	30.00
D9-NETFOSE	20.0	19.8	-0.8	30.00
13C3-HFPO-DA	8.00	7.33	-8.4	30.00

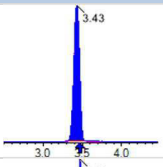
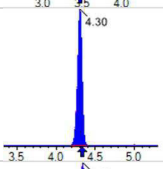
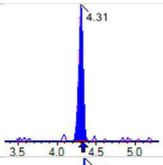
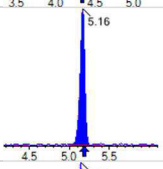
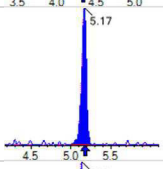
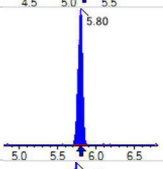
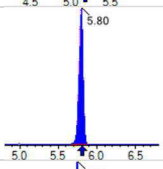
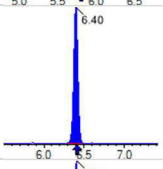
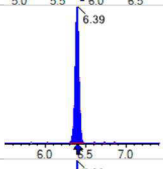
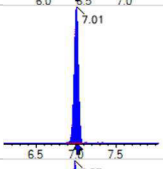
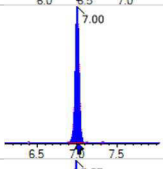
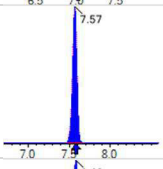
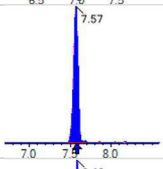
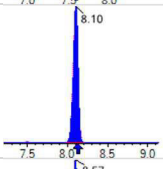
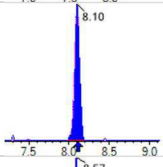
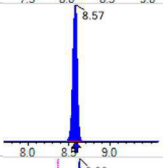
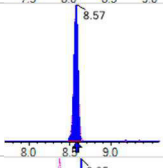
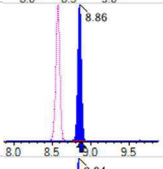
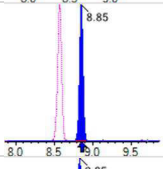
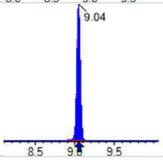
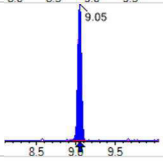
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (10)
Acquired: 2023/04/12 - 12:08

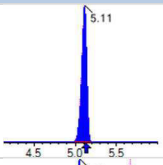
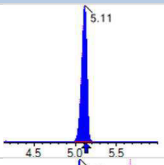
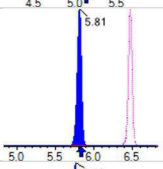
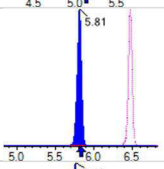
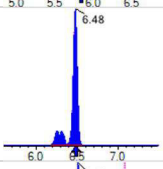
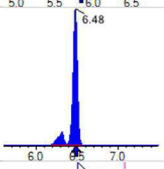
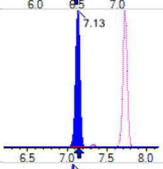
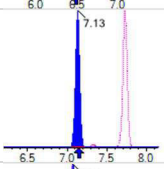
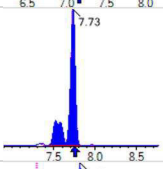
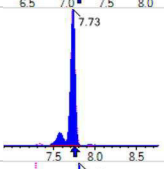
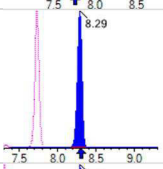
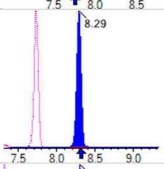
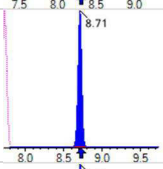
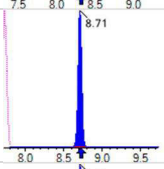
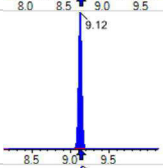
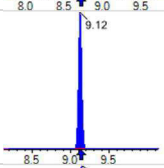
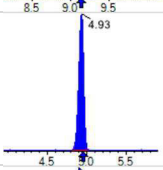
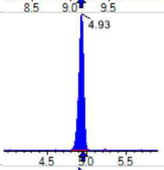
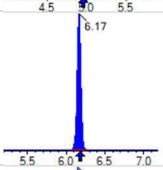
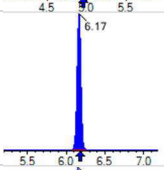
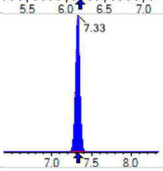
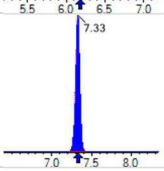
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 983781	(3.43 , 1.00) (0.00 , N/A , 0.0)	199.3	N/A 0.0 0.0	8.5107	N/A			
PFPeA	(263.0 / 219.0) 950790 (263.0 / 69.0) 10669	(4.30 , 1.00) (0.00 , N/A , -0.2)	1576.1 205.9	0.0112 85.5 85.5	4.1608	N/A			
PFHxA	(313.0 / 269.0) 557731 (313.0 / 119.0) 56357	(5.16 , 1.00) (0.00 , N/A , -0.2)	650.6 667.7	0.1010 92.6 92.6	2.0744	N/A			
PFHpA	(363.0 / 319.0) 441349 (363.0 / 169.0) 139006	(5.80 , 1.00) (0.00 , N/A , -0.1)	2451.6 4102727.7	0.3150 103.2 103.2	2.0870	N/A			
PFOA	(413.0 / 369.0) 660710 (413.0 / 169.0) 208722	(6.40 , 1.00) (0.00 , N/A , 0.1)	1357.8 5402.4	0.3159 100.9 100.9	2.2345	N/A			
PFNA	(463.0 / 419.0) 578919 (463.0 / 169.0) 118193	(7.01 , 1.00) (0.00 , N/A , 0.2)	5401.1 1613.6	0.2042 95.6 95.6	2.2282	N/A			
PFDA	(513.0 / 469.0) 731326 (513.0 / 169.0) 88789	(7.57 , 1.00) (0.00 , N/A , -0.1)	1515.2 1755.9	0.1214 105.9 105.9	2.0816	N/A			
PFUnA	(563.0 / 519.0) 639012 (563.0 / 169.0) 71299	(8.10 , 1.00) (0.00 , N/A , 0.0)	1701.2 72846.6	0.1116 94.4 94.4	2.0890	N/A			
PFDoA	(613.0 / 569.0) 532305 (613.0 / 169.0) 92509	(8.57 , 1.00) (0.00 , N/A , 0.0)	1926.7 5242.9	0.1738 101.4 101.4	2.0668	N/A			
PFTrDA	(663.0 / 619.0) 534706 (663.0 / 169.0) 135706	(8.86 , 1.03) (N/A , -0.01 , 0.1)	2272.9 4493.2	0.2538 102.4 102.4	2.2787	N/A			
PFTeDA	(713.0 / 669.0) 535328 (713.0 / 169.0) 103638	(9.04 , 1.00) (0.00 , N/A , -0.1)	1527.4 658.6	0.1936 96.1 96.1	2.0539	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (10)
Acquired: 2023/04/12 - 12:08

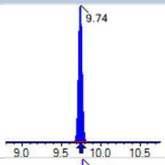
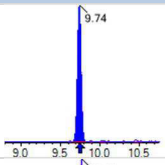
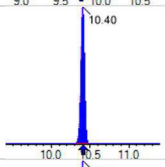
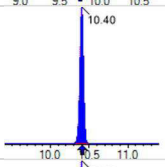
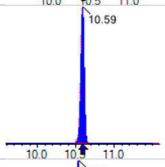
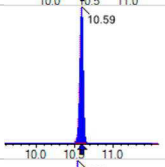
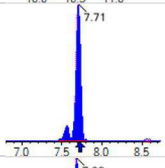
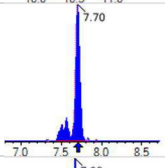
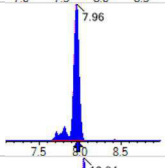
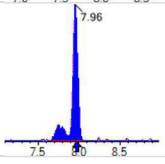
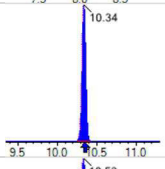
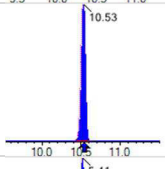
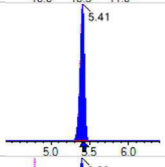
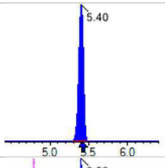
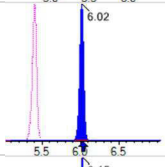
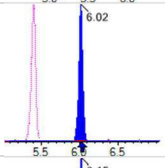
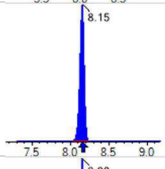
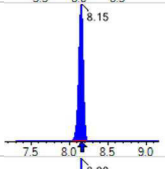
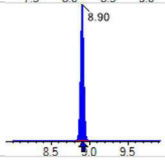
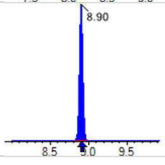
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 936830 (299.0 / 99.0) 629138	(5.11 , 1.00) (0.00 , N/A , -0.1)	18654.9 5092.1	0.6716 104.5 104.5	1.9079	N/A			
PFPeS	(349.0 / 80.0) 1605852 (349.0 / 99.0) 531618	(5.81 , 0.90) (N/A , -0.01 , 0.0)	8353.6 4795.6	0.3311 97.6 97.6	2.0947	N/A			
PFHxS	(399.0 / 80.0) 1204556 (399.0 / 99.0) 433769	(6.48 , 1.00) (0.00 , N/A , 0.0)	436874.1 6193321.1	0.3601 104.0 104.0	1.8440	N/A			
PFHpS	(449.0 / 80.0) 1307865 (449.0 / 99.0) 386652	(7.13 , 0.92) (N/A , -0.01 , 0.2)	173507.4 4634.4	0.2956 106.6 106.6	1.9854	N/A			
PFOS	(499.0 / 80.0) 1808104 (499.0 / 99.0) 402950	(7.73 , 1.00) (0.00 , N/A , 0.1)	1036.3 1621.4	0.2229 99.6 99.6	1.9558	N/A			
PFNS	(549.0 / 80.0) 1813786 (549.0 / 99.0) 432685	(8.29 , 1.07) (N/A , -0.01 , 0.1)	1230247.6 729156.9	0.2386 98.6 98.6	2.0994	N/A			
PFDS	(599.0 / 80.0) 2051380 (599.0 / 99.0) 454796	(8.71 , 1.13) (N/A , -0.01 , 0.0)	6475.7 10748074.2	0.2217 98.9 98.9	2.1004	N/A			
PFDoS	(699.0 / 80.0) 1596977 (699.0 / 99.0) 364935	(9.12 , 1.18) (N/A , -0.01 , 0.0)	3118.1 1781.1	0.2285 95.5 95.5	2.1257	N/A			
4:2FTS	(327.0 / 307.0) 1372013 (327.0 / 81.0) 816032	(4.93 , 1.00) (0.00 , N/A , -0.1)	2543.8 1077.8	0.5948 87.5 87.5	8.8047	N/A			
6:2FTS	(427.0 / 407.0) 977926 (427.0 / 81.0) 650984	(6.17 , 1.00) (0.00 , N/A , 0.0)	3169.9 2216.5	0.6657 94.5 94.5	8.5124	N/A			
8:2FTS	(527.0 / 507.0) 998595 (527.0 / 81.0) 659445	(7.33 , 1.00) (0.00 , N/A , 0.0)	7996.7 2129.8	0.6604 97.7 97.7	8.8225	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (10)
Acquired: 2023/04/12 - 12:08

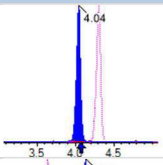
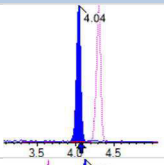
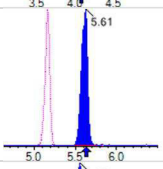
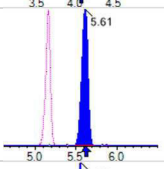
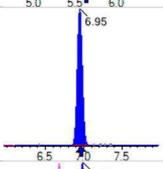
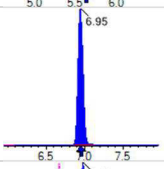
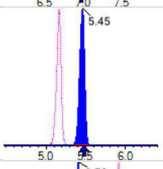
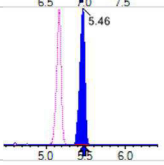
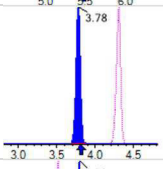
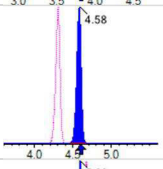
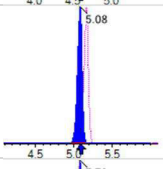
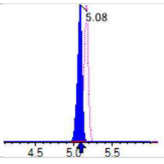
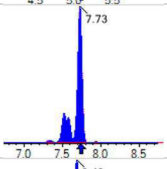
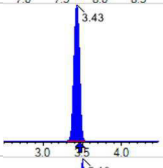
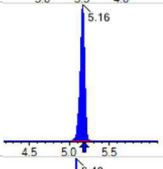
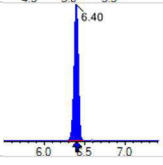
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 2691174 (498.0 / 478.0) 60808	(9.74 , 1.00) (0.00 , N/A , 0.0)	3728.2 508.5	0.0226 91.3 91.3	2.1736	N/A			
NMeFOSA	(512.0 / 219.0) 2096232 (512.0 / 169.0) 1568503	(10.40 , 1.00) (0.00 , N/A , 0.0)	5872.6 4984.5	0.7482 86.3 86.3	8.8402	N/A			
NEtFOSA	(526.0 / 219.0) 1849369 (526.0 / 169.0) 2099775	(10.59 , 1.00) (0.00 , N/A , 0.0)	7109.0 5367.7	1.1354 90.8 90.8	7.1893	N/A			
NMeFOSAA	(570.0 / 419.0) 309808 (570.0 / 483.0) 145828	(7.71 , 1.00) (0.01 , N/A , 0.1)	2726.7 230.8	0.4707 101.6 101.6	2.1685	N/A			
NEtFOSAA	(584.0 / 419.0) 256319 (584.0 / 526.0) 147518	(7.96 , 1.00) (0.01 , N/A , 0.1)	8159.1 699.0	0.5755 94.3 94.3	2.1764	N/A			
NMeFOSE	(616.0 / 59.0) 982993	(10.34 , 1.00) (0.01 , N/A , 0.0)	1602.6	N/A 0.0 0.0	8.6980	N/A			
NEtFOSE	(630.0 / 59.0) 1217145	(10.53 , 1.00) (0.01 , N/A , 0.0)	1913.3	N/A 0.0 0.0	8.8839	N/A			
HFPO-DA	(285.0 / 169.0) 595379 (285.0 / 185.0) 1693380	(5.41 , 1.00) (0.00 , N/A , 0.2)	2139.9 2745.1	2.8442 109.3 109.3	4.2756	N/A			
ADONA	(377.0 / 85.0) 2101119 (377.0 / 251.0) 203035	(6.02 , 1.11) (N/A , -0.01 , -0.1)	4851.6 1225.5	0.0966 97.4 97.4	4.2231	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 6048233 (533.0 / 353.0) 1808399	(8.15 , 1.51) (N/A , -0.01 , 0.0)	5194.5 2262.0	0.2990 103.0 103.0	4.0377	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 3833754 (633.0 / 453.0) 1263380	(8.90 , 1.65) (N/A , -0.01 , 0.0)	5978.6 3571.2	0.3295 98.3 98.3	4.3298	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (10)
Acquired: 2023/04/12 - 12:08

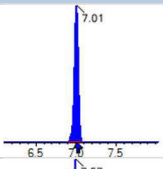
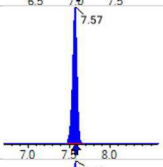
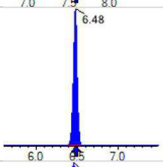
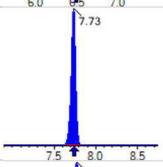
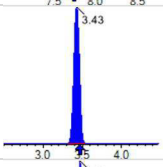
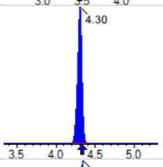
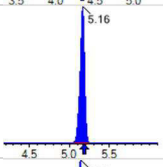
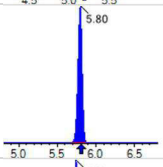
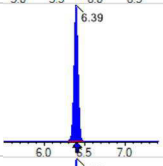
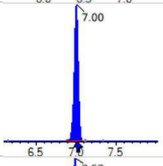
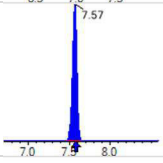
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 66184 (241.0 / 117.0) 108977	(4.04 , 0.94) (N/A , -0.02 , -0.1)	46.1 42.9	1.6466 99.7 99.7	7.9040	N/A			
5:3FTCA	(341.0 / 236.7) 354490 (341.0 / 217.0) 616436	(5.61 , 1.09) (N/A , -0.01 , 0.0)	695.5 834.7	1.7389 110.9 110.9	8.3886	N/A			
7:3FTCA	(441.0 / 317.0) 629606 (441.0 / 337.0) 553885	(6.95 , 1.35) (N/A , -0.01 , 0.1)	1003.1 1674.6	0.8797 102.1 102.1	8.5079	N/A			
PFEESA	(315.0 / 135.0) 1388953 (315.0 / 83.0) 331829	(5.45 , 1.06) (N/A , -0.01 , -0.2)	3654.1 911.2	0.2389 97.9 97.9	4.1067	N/A			
PFMPA	(229.0 / 85.0) 207793	(3.78 , 0.88) (N/A , -0.03 , 0.0)	2630.0	N/A 0.0 0.0	4.2701	N/A			
PFMBA	(279.0 / 85.0) 735006	(4.58 , 1.06) (N/A , -0.02 , 0.0)	2818.1	N/A 0.0 0.0	4.1251	N/A			
NFDHA	(295.0 / 201.0) 653548 (295.0 / 85.0) 623805	(5.08 , 0.98) (N/A , -0.01 , 0.0)	1956.9 1746.2	0.9545 97.5 97.5	4.7555	N/A			
TDCA	(499.0 / 80.0) 1660060	(7.73 , 1.00) (N/A , -0.01 , 0.0)	15325.3	N/A 0.0 0.0	2.0863	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 135350	(3.43 , N/A) (N/A , -0.03 , N/A)	1664.4	N/A	1.1103 [1.0000]	111.0% { 113.1% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 225007	(5.16 , N/A) (N/A , -0.01 , N/A)	2035.8	N/A	1.1094 [1.0000]	110.9% { 114.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 353136	(6.40 , N/A) (N/A , -0.01 , N/A)	1905.3	N/A	1.1112 [1.0000]	111.1% { 109.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (10)
Acquired: 2023/04/12 - 12:08

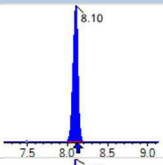
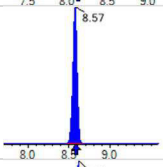
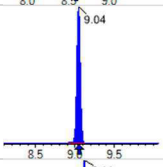
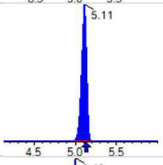
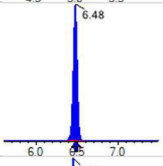
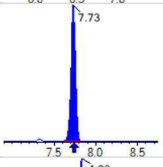
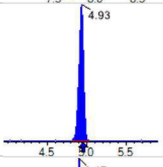
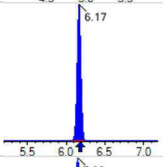
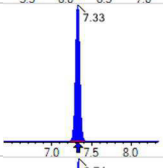
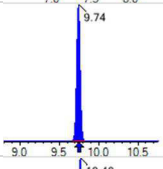
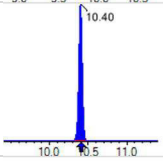
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 313677	(7.01 , N/A) (N/A , -0.01 , N/A)	559.6	N/A	1.0335 [1.0000]	103.4% { 102.2% }			
13C2_PFDA_IIS	(515.0 / 470.1) 345166	(7.57 , N/A) (N/A , -0.01 , N/A)	37972.7	N/A	1.0638 [1.0000]	106.4% { 112.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 492118	(6.48 , N/A) (N/A , -0.01 , N/A)	3182.2	N/A	1.0988 [1.0000]	109.9% { 119.2% }			
13C4_PFOS_IIS	(503.0 / 79.9) 761893	(7.73 , N/A) (N/A , -0.01 , N/A)	3170.8	N/A	1.1203 [1.0000]	112.0% { 117.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1058275	(3.43 , N/A) (N/A , -0.03 , N/A)	5530.2	N/A	7.3745 [8.0000]	92.2% { 101.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 951141	(4.30 , N/A) (N/A , -0.03 , N/A)	3683.6	N/A	3.7739 [4.0000]	94.3% { 106.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 557439	(5.16 , N/A) (N/A , -0.01 , N/A)	3262.2	N/A	1.7478 [2.0000]	87.4% { 95.3% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 490663	(5.80 , N/A) (N/A , -0.01 , N/A)	1732.3	N/A	1.7613 [2.0000]	88.1% { 100.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 627208	(6.39 , N/A) (N/A , -0.01 , N/A)	4390.5	N/A	1.7995 [2.0000]	90.0% { 102.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 281681	(7.00 , N/A) (N/A , -0.01 , N/A)	2478.9	N/A	0.9558 [1.0000]	95.6% { 94.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 373785	(7.57 , N/A) (N/A , -0.01 , N/A)	49478.9	N/A	0.9653 [1.0000]	96.5% { 103.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (10)
Acquired: 2023/04/12 - 12:08

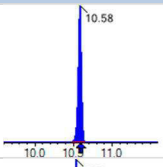
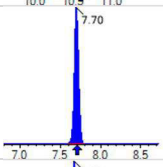
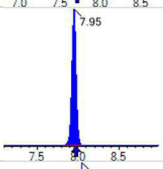
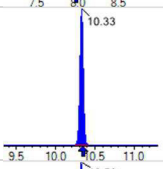
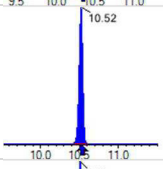
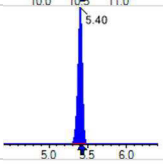
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 347656	(8.10 , N/A) (N/A , -0.02 , N/A)	2962.5	N/A	0.9672 [1.0000]	96.7% { 96.4% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 283969	(8.57 , N/A) (N/A , -0.01 , N/A)	3571.4	N/A	0.9227 [1.0000]	92.3% { 98.9% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 284384	(9.04 , N/A) (N/A , -0.01 , N/A)	1601.5	N/A	0.9799 [1.0000]	98.0% { 94.3% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1376782	(5.11 , N/A) (N/A , -0.02 , N/A)	2295.9	N/A	1.7820 [2.0000]	89.1% { 98.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 830970	(6.48 , N/A) (N/A , -0.01 , N/A)	2781.8	N/A	1.8319 [2.0000]	91.6% { 103.1% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1633867	(7.73 , N/A) (N/A , -0.01 , N/A)	1791.4	N/A	1.7701 [2.0000]	88.5% { 98.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 209905	(4.93 , N/A) (N/A , -0.01 , N/A)	974.7	N/A	3.0164 [4.0000]	75.4% { 84.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 268527	(6.17 , N/A) (N/A , -0.01 , N/A)	12638.9	N/A	3.3810 [4.0000]	84.5% { 91.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 320897	(7.33 , N/A) (N/A , -0.01 , N/A)	1597.0	N/A	3.0519 [4.0000]	76.3% { 89.4% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2826165	(9.74 , N/A) (N/A , -0.01 , N/A)	3156.1	N/A	1.8861 [2.0000]	94.3% { 108.8% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 571568	(10.40 , N/A) (N/A , -0.01 , N/A)	2511.9	N/A	1.7875 [2.0000]	89.4% { 109.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (10)
Acquired: 2023/04/12 - 12:08

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 489726	(10.58 , N/A) (N/A , -0.01 , N/A)	2813.4	N/A	1.8563 [2.0000]	92.8% { 106.4% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 672323	(7.70 , N/A) (N/A , -0.01 , N/A)	15010.1	N/A	3.3984 [4.0000]	85.0% { 99.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 532547	(7.95 , N/A) (N/A , -0.02 , N/A)	729167.0	N/A	3.2819 [4.0000]	82.0% { 99.2% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2070306	(10.33 , N/A) (N/A , -0.01 , N/A)	1551.5	N/A	19.5028 [20.0000]	97.5% { 108.4% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2782379	(10.52 , N/A) (N/A , -0.01 , N/A)	1283.8	N/A	19.8311 [20.0000]	99.2% { 110.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1319128	(5.40 , N/A) (N/A , -0.01 , N/A)	2607.1	N/A	7.3318 [8.0000]	91.6% { 102.2% }			

LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315014
Laboratory ID: SC01502-LCV1
Sequence: SC01502
Standard ID: 23C0358

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	0.400	0.404	0.9	30.00
PFPEA	0.200	0.191	-4.7	30.00
PFHXA	0.100	0.145	45.3 *	30.00
PFHPA	0.100	0.128	28.3	30.00
PFOA	0.100	0.123	22.9	30.00
PFNA	0.100	0.0805	-19.5	30.00
PFDA	0.100	0.104	4.1	30.00
PFUnA	0.100	0.0971	-2.9	30.00
PFDOA	0.100	0.108	8.5	30.00
PFTRDA	0.100	0.0963	-3.7	30.00
PFTEDA	0.100	0.0875	-12.5	30.00
PFBS	0.0885	0.0992	12.1	30.00
PFPES	0.0940	0.0889	-5.4	30.00
PFHXS	0.0915	0.0889	-2.8	30.00
PFHPS	0.0955	0.0961	0.6	30.00
PFOS	0.0930	0.111	19.4	30.00
PFNS	0.0960	0.0829	-13.6	30.00
PFDS	0.0965	0.0916	-5.1	30.00
PFDOS	0.0970	0.0851	-12.2	30.00
4:2FTS	0.375	0.394	5.0	30.00
6:2FTS	0.380	0.610	60.6 *	30.00
8:2FTS	0.384	0.411	7.0	30.00
PFOSA	0.100	0.0973	-2.7	30.00
NMeFOSA	0.400	0.413	3.1	30.00
NEtFOSA	0.400	0.417	4.4	30.00
NMeFOSAA	0.100	0.121	20.6	30.00
NEtFOSAA	0.100	0.0951	-4.9	30.00
NMeFOSE	0.400	0.432	8.1	30.00

LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315014
Laboratory ID: SC01502-LCV1
Sequence: SC01502
Standard ID: 23C0358

NEtFOSE	0.400	0.416	3.9	30.00
HFPO-DA	0.200	0.215	7.5	30.00
ADONA	0.189	0.204	7.8	30.00
PFEESA	0.178	0.185	3.8	30.00
PFMPA	0.200	0.245	22.4	30.00
PFMBA	0.200	0.232	16.0	30.00
NFDHA	0.200	0.178	-10.9	30.00
9CL-PF3ONS	0.187	0.210	12.2	30.00
11CL-PF3OUDS	0.189	0.187	-1.3	30.00
3:3FTCA	0.400	0.542	35.5 *	30.00
5:3FTCA	0.400	0.407	1.8	30.00
7:3FTCA	0.400	0.406	1.6	30.00

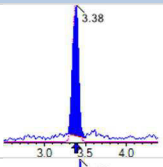
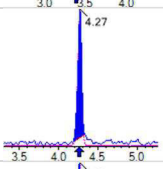
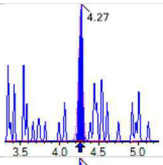
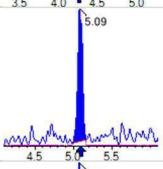
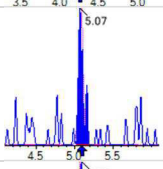
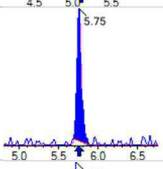
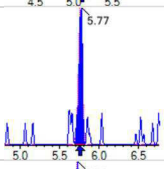
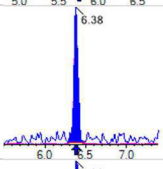
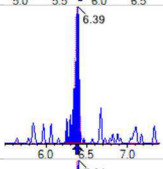
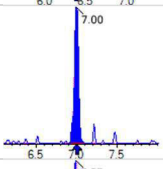
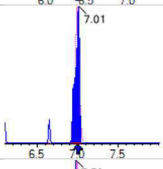
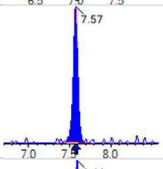
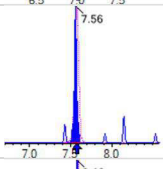
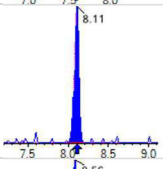
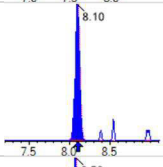
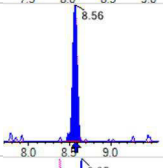
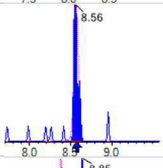
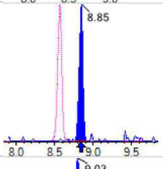
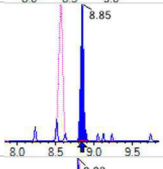
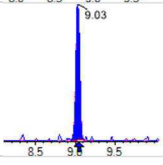
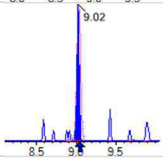
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (2)
Acquired: 2023/04/14 - 14:42

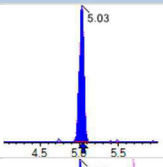
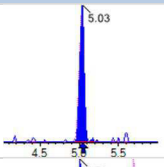
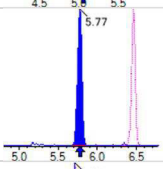
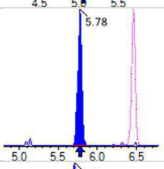
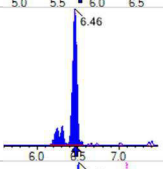
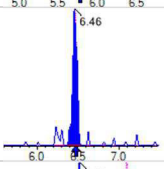
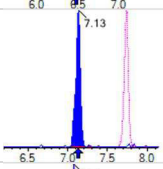
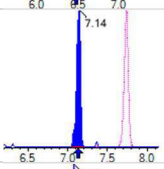
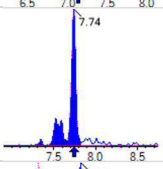
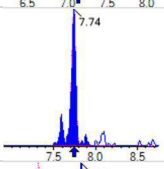
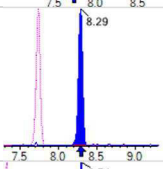
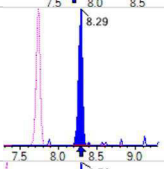
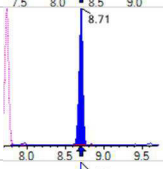
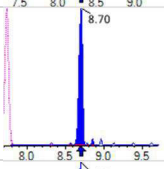
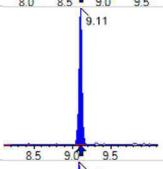
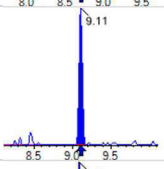
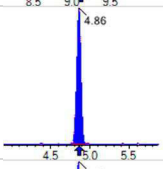
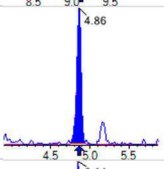
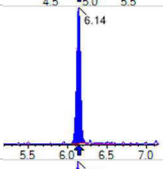
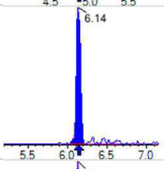
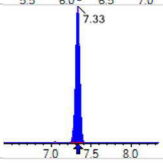
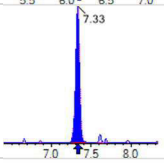
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 54837	(3.38 , 1.00) (0.00 , N/A , 0.0)	62.4	N/A 0.0 0.0	0.4035 [0.4000]	100.9%			
PFPeA	(263.0 / 219.0) 43442 (263.0 / 69.0) 817	(4.27 , 1.00) (0.00 , N/A , -0.1)	25.3 17.6	0.0188 143.2 160.6	0.1907 [0.2000]	95.3%			
PFHxA	(313.0 / 269.0) 44150 (313.0 / 119.0) 3668	(5.09 , 1.00) (0.00 , N/A , 0.9)	15.5 59.9	0.0831 76.1 85.3	0.1453 [0.1000]	145.3%			CV2,
PFHpA	(363.0 / 319.0) 33847 (363.0 / 169.0) 5399	(5.75 , 1.00) (-0.01 , N/A , -0.9)	17.9 28.9	0.1595 52.3 51.2	0.1283 [0.1000]	128.3%			
PFOA	(413.0 / 369.0) 41930 (413.0 / 169.0) 13690	(6.38 , 1.00) (0.00 , N/A , -0.6)	114.4 1837.3	0.3265 104.3 104.3	0.1229 [0.1000]	122.9%			
PFNA	(463.0 / 419.0) 24032 (463.0 / 169.0) 10860	(7.00 , 1.00) (0.00 , N/A , -0.4)	1269.6 2053.8	0.4519 211.6 219.2	0.0805 [0.1000]	80.5%			IR2,
PFDA	(513.0 / 469.0) 37303 (513.0 / 169.0) 4334	(7.57 , 1.00) (0.00 , N/A , 0.8)	125.6 380.0	0.1162 101.3 104.1	0.1041 [0.1000]	104.1%			
PFUnA	(563.0 / 519.0) 33383 (563.0 / 169.0) 6370	(8.11 , 1.00) (0.01 , N/A , 0.7)	201.5 3304.7	0.1908 161.5 167.6	0.0971 [0.1000]	97.1%			IR2,
PFDoA	(613.0 / 569.0) 30440 (613.0 / 169.0) 3804	(8.56 , 1.00) (0.00 , N/A , 0.5)	191.5 159.8	0.1250 72.9 84.6	0.1085 [0.1000]	108.5%			
PFTrDA	(663.0 / 619.0) 24623 (663.0 / 169.0) 5317	(8.85 , 1.03) (N/A , 0.00 , 0.0)	175.3 222.0	0.2160 87.1 83.1	0.0963 [0.1000]	96.3%			
PFTeDA	(713.0 / 669.0) 20880 (713.0 / 169.0) 2387	(9.03 , 1.00) (0.00 , N/A , 0.6)	197.3 133.7	0.1143 56.7 57.5	0.0875 [0.1000]	87.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (2)
Acquired: 2023/04/14 - 14:42

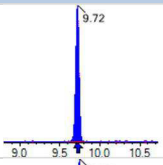
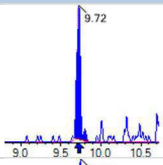
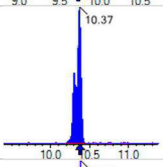
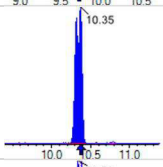
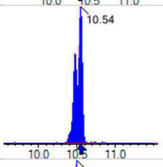
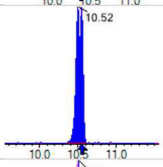
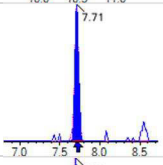
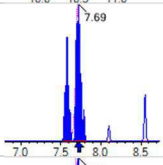
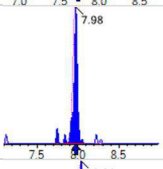
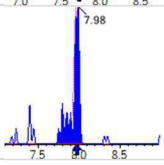
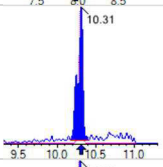
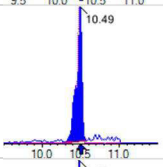
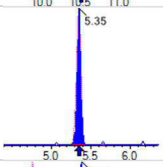
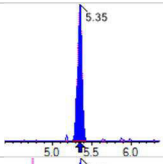
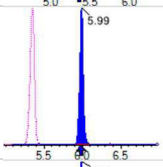
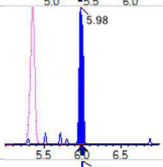
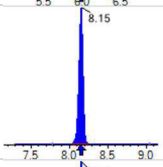
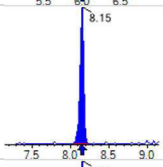
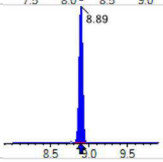
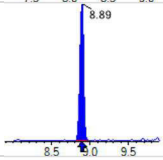
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 51452 (299.0 / 99.0) 28457	(5.03 , 1.00) (0.00 , N/A , -0.1)	1129.3 1204.3	0.5531 86.0 83.4	0.0992 [0.0885]	112.1%			
PFPeS	(349.0 / 80.0) 77681 (349.0 / 99.0) 36778	(5.77 , 0.89) (N/A , 0.00 , -0.2)	4000.3 93096.7	0.4734 139.6 136.2	0.0889 [0.0938]	94.8%			
PFHxS	(399.0 / 80.0) 66150 (399.0 / 99.0) 19937	(6.46 , 1.00) (0.00 , N/A , 0.0)	304.1 897815.2	0.3014 87.0 87.4	0.0889 [0.0911]	97.6%			
PFHpS	(449.0 / 80.0) 76402 (449.0 / 99.0) 22416	(7.13 , 0.92) (N/A , 0.00 , -0.3)	2743.0 1445.4	0.2934 105.8 106.0	0.0961 [0.0951]	101.0%			
PFOS	(499.0 / 80.0) 123941 (499.0 / 99.0) 28828	(7.74 , 1.00) (0.00 , N/A , -0.1)	256.5 1185.9	0.2326 103.9 101.0	0.1111 [0.0927]	119.8%			MI2 ABK 4/16/23
PFNS	(549.0 / 80.0) 86468 (549.0 / 99.0) 21330	(8.29 , 1.07) (N/A , 0.00 , -0.1)	4189.3 1276.8	0.2467 101.9 101.6	0.0829 [0.0960]	86.4%			
PFDS	(599.0 / 80.0) 107949 (599.0 / 99.0) 25082	(8.71 , 1.13) (N/A , 0.00 , 0.2)	6266.5 10348.1	0.2324 103.7 103.8	0.0916 [0.0963]	95.1%			
PFDoS	(699.0 / 80.0) 77191 (699.0 / 99.0) 16919	(9.11 , 1.18) (N/A , 0.00 , -0.1)	648.5 217.6	0.2192 91.6 101.7	0.0851 [0.0970]	87.8%			
4:2FTS	(327.0 / 307.0) 77397 (327.0 / 81.0) 47009	(4.86 , 1.00) (0.00 , N/A , -0.1)	1195.7 133.9	0.6074 89.3 98.4	0.3936 [0.3738]	105.3%			
6:2FTS	(427.0 / 407.0) 92590 (427.0 / 81.0) 71913	(6.14 , 1.00) (0.00 , N/A , 0.2)	302.4 174.7	0.7767 110.3 107.6	0.6103 [0.3796]	160.8%			CV2,
8:2FTS	(527.0 / 507.0) 53758 (527.0 / 81.0) 44674	(7.33 , 1.00) (0.00 , N/A , 0.1)	546.1 384.7	0.8310 123.0 110.2	0.4107 [0.3833]	107.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (2)
Acquired: 2023/04/14 - 14:42

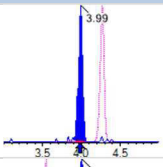
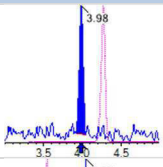
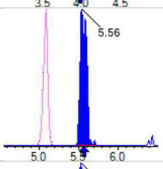
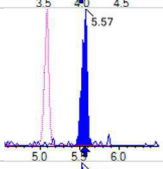
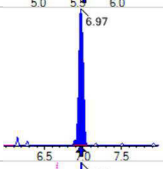
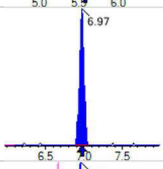
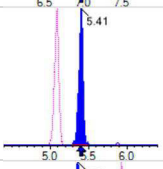
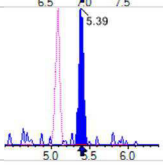
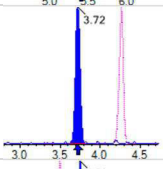
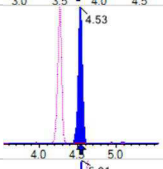
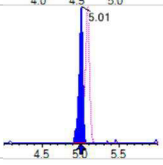
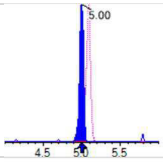
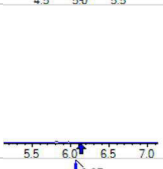
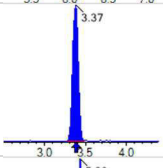
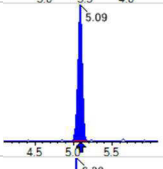
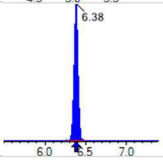
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 115243 (498.0 / 478.0) 3233	(9.72 , 1.00) (0.00 , N/A , -0.2)	594.7 64.0	0.0281 113.3 126.4	0.0973 [0.1000]	97.3%			
NMeFOSA	(512.0 / 219.0) 113249 (512.0 / 169.0) 100286	(10.37 , 1.00) (0.00 , N/A , 1.3)	973.3 947.4	0.8855 102.1 104.9	0.4126 [0.4000]	103.1%			
NEtFOSA	(526.0 / 219.0) 131976 (526.0 / 169.0) 172837	(10.54 , 1.00) (-0.01 , N/A , 0.9)	930.8 963.4	1.3096 104.8 105.1	0.4175 [0.4000]	104.4%			
NMeFOSAA	(570.0 / 419.0) 17780 (570.0 / 483.0) 6566	(7.71 , 1.00) (0.00 , N/A , 0.9)	32087.0 262378.2	0.3693 79.7 69.3	0.1206 [0.1000]	120.6%			
NEtFOSAA	(584.0 / 419.0) 12684 (584.0 / 526.0) 12058	(7.98 , 1.00) (0.01 , N/A , -0.2)	30746.0 12877.9	0.9507 155.7 165.9	0.0951 [0.1000]	95.1%			IR2,
NMeFOSE	(616.0 / 59.0) 50136	(10.31 , 1.00) (0.01 , N/A , 0.0)	139.3	N/A 0.0 0.0	0.4325 [0.4000]	108.1%			
NEtFOSE	(630.0 / 59.0) 63915	(10.49 , 1.00) (0.01 , N/A , 0.0)	160.7	N/A 0.0 0.0	0.4156 [0.4000]	103.9%			
HFPO-DA	(285.0 / 169.0) 30129 (285.0 / 185.0) 79789	(5.35 , 1.00) (0.00 , N/A , 0.0)	9679.5 469.5	2.6482 101.8 101.8	0.2149 [0.2000]	107.5%			
ADONA	(377.0 / 85.0) 102065 (377.0 / 251.0) 11236	(5.99 , 1.12) (N/A , 0.00 , 0.4)	1273.9 918.1	0.1101 110.9 108.4	0.2038 [0.1885]	108.1%			
9Cl-Pf3ONS	(531.0 / 351.0) 316382 (533.0 / 353.0) 98419	(8.15 , 1.52) (N/A , 0.00 , 0.0)	1093.4 289.2	0.3111 107.1 95.4	0.2098 [0.1867]	112.4%			
11Cl-PF3OUDS	(631.0 / 451.0) 166275 (633.0 / 453.0) 61967	(8.89 , 1.66) (N/A , 0.00 , 0.0)	908.5 483.2	0.3727 111.2 110.1	0.1866 [0.1886]	98.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (2)
Acquired: 2023/04/14 - 14:42

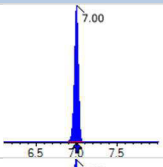
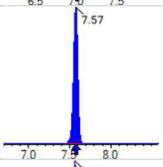
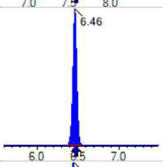
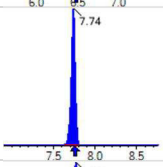
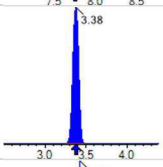
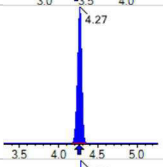
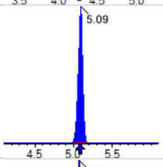
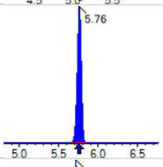
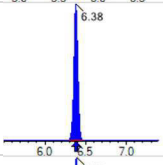
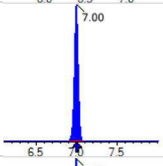
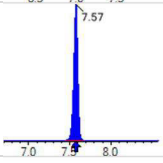
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 4526 (241.0 / 117.0) 6620	(3.99 , 0.93) (N/A , 0.01 , 0.4)	21.0 14.0	1.4626 88.6 90.6	0.5422 [0.4000]	135.5%			CV2,
5:3FTCA	(341.0 / 236.7) 19436 (341.0 / 217.0) 37276	(5.56 , 1.09) (N/A , 0.00 , -0.3)	4490.7 130.9	1.9179 122.3 116.2	0.4070 [0.4000]	101.8%			
7:3FTCA	(441.0 / 317.0) 33974 (441.0 / 337.0) 36121	(6.97 , 1.37) (N/A , 0.00 , 0.2)	591.5 3229.0	1.0632 123.4 125.6	0.4063 [0.4000]	101.6%			
PFEESA	(315.0 / 135.0) 70588 (315.0 / 83.0) 18400	(5.41 , 1.06) (N/A , 0.01 , 0.8)	1786203.7 81.9	0.2607 106.8 107.6	0.1847 [0.1785]	103.5%			
PFMPA	(229.0 / 85.0) 11874	(3.72 , 0.87) (N/A , 0.00 , 0.0)	412.1	N/A 0.0 0.0	0.2447 [0.2000]	122.4%			
PFMBA	(279.0 / 85.0) 41229	(4.53 , 1.06) (N/A , 0.00 , 0.0)	4654.3	N/A 0.0 0.0	0.2321 [0.2000]	116.0%			
NFDHA	(295.0 / 201.0) 27681 (295.0 / 85.0) 28062	(5.01 , 0.98) (N/A , 0.01 , 0.4)	1714.6 6831.7	1.0138 103.5 106.1	0.1782 [0.2000]	89.1%			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000 [0.1000]	N/A%			CV2,
13C3_PFBA_IIS	(216.0 / 172.0) 145201	(3.37 , N/A) (N/A , 0.00 , N/A)	1024.3	N/A	1.1911 [1.0000]	119.1% { 115.1% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 226004	(5.09 , N/A) (N/A , 0.00 , N/A)	1006.5	N/A	1.1143 [1.0000]	111.4% { 113.2% }			
13C4_PFOA_IIS	(417.0 / 372.0) 342504	(6.38 , N/A) (N/A , 0.00 , N/A)	13679.4	N/A	1.0778 [1.0000]	107.8% { 103.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (2)
Acquired: 2023/04/14 - 14:42

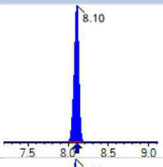
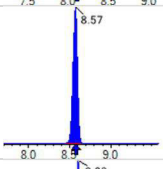
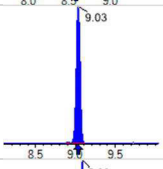
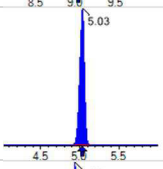
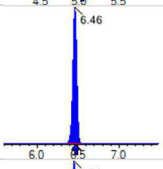
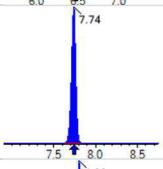
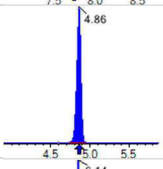
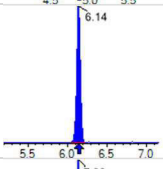
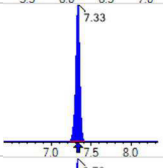
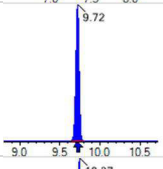
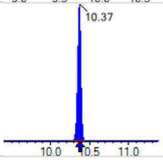
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 365303	(7.00 , N/A) (N/A , 0.00 , N/A)	7274.9	N/A	1.2036 [1.0000]	120.4% { 113.9% }			
13C2_PFDA_IIS	(515.0 / 470.1) 360744	(7.57 , N/A) (N/A , 0.00 , N/A)	3733.3	N/A	1.1118 [1.0000]	111.2% { 109.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 510899	(6.46 , N/A) (N/A , 0.00 , N/A)	12884.2	N/A	1.1408 [1.0000]	114.1% { 104.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 795036	(7.74 , N/A) (N/A , -0.01 , N/A)	2119.3	N/A	1.1690 [1.0000]	116.9% { 112.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1244188	(3.38 , N/A) (N/A , 0.01 , N/A)	5439.9	N/A	8.0818 [8.0000]	101.0% { 114.5% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 948299	(4.27 , N/A) (N/A , 0.00 , N/A)	2853.3	N/A	3.7460 [4.0000]	93.6% { 110.3% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 629912	(5.09 , N/A) (N/A , 0.00 , N/A)	2203.8	N/A	1.9664 [2.0000]	98.3% { 107.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 611912	(5.76 , N/A) (N/A , 0.01 , N/A)	1847.7	N/A	2.1869 [2.0000]	109.3% { 112.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 723580	(6.38 , N/A) (N/A , 0.00 , N/A)	2721.1	N/A	2.1404 [2.0000]	107.0% { 109.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 323665	(7.00 , N/A) (N/A , 0.00 , N/A)	46241271.8	N/A	0.9431 [1.0000]	94.3% { 101.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 381138	(7.57 , N/A) (N/A , 0.00 , N/A)	3941.3	N/A	0.9418 [1.0000]	94.2% { 108.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (2)
Acquired: 2023/04/14 - 14:42

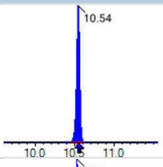
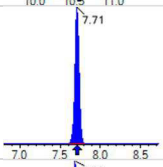
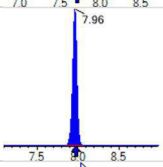
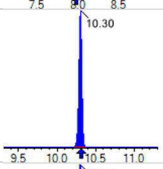
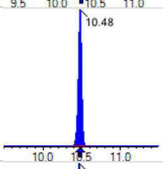
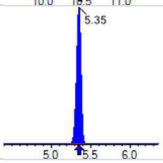
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 390795	(8.10 , N/A) (N/A , 0.00 , N/A)	7104.1	N/A	1.0403 [1.0000]	104.0% { 107.2% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 309373	(8.57 , N/A) (N/A , 0.00 , N/A)	15929.4	N/A	0.9618 [1.0000]	96.2% { 117.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 260399	(9.03 , N/A) (N/A , 0.00 , N/A)	1145.5	N/A	0.8585 [1.0000]	85.9% { 111.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1454786	(5.03 , N/A) (N/A , 0.00 , N/A)	3144.5	N/A	1.8137 [2.0000]	90.7% { 110.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 946629	(6.46 , N/A) (N/A , 0.00 , N/A)	2499.7	N/A	2.0102 [2.0000]	100.5% { 106.4% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1972126	(7.74 , N/A) (N/A , 0.00 , N/A)	3589.7	N/A	2.0475 [2.0000]	102.4% { 118.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 264894	(4.86 , N/A) (N/A , 0.00 , N/A)	1028.4	N/A	3.6667 [4.0000]	91.7% { 110.8% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 354614	(6.14 , N/A) (N/A , 0.00 , N/A)	1772.0	N/A	4.3008 [4.0000]	107.5% { 122.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 371084	(7.33 , N/A) (N/A , 0.00 , N/A)	1413.9	N/A	3.3995 [4.0000]	85.0% { 99.7% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2702273	(9.72 , N/A) (N/A , 0.00 , N/A)	4998.1	N/A	1.7282 [2.0000]	86.4% { 110.4% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 661669	(10.37 , N/A) (N/A , 0.00 , N/A)	2335.9	N/A	1.9831 [2.0000]	99.2% { 105.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (2)
Acquired: 2023/04/14 - 14:42

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 601837	(10.54 , N/A) (N/A , 0.00 , N/A)	2977.1	N/A	2.1861 [2.0000]	109.3% { 107.5% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 693774	(7.71 , N/A) (N/A , -0.01 , N/A)	2331.0	N/A	3.3607 [4.0000]	84.0% { 106.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 602863	(7.96 , N/A) (N/A , 0.00 , N/A)	4903.6	N/A	3.5603 [4.0000]	89.0% { 108.8% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2123684	(10.30 , N/A) (N/A , 0.00 , N/A)	1399.7	N/A	19.1716 [20.0000]	95.9% { 97.7% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3123137	(10.48 , N/A) (N/A , 0.00 , N/A)	1510.1	N/A	21.3318 [20.0000]	106.7% { 106.6% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1327851	(5.35 , N/A) (N/A , 0.00 , N/A)	2443.6	N/A	7.3477 [8.0000]	91.8% { 109.5% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23D0043
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315014
Standard ID:	23C0362	Sequence:	SC01502

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01502-CCV1	PFBA	20.0	20.2	101	ng/mL	+/- 30.00%
	PFPEA	10.0	9.99	99.9	ng/mL	+/- 30.00%
	PFHXA	5.00	4.71	94.1	ng/mL	+/- 30.00%
	PFHPA	5.00	5.21	104	ng/mL	+/- 30.00%
	PFOA	5.00	5.23	105	ng/mL	+/- 30.00%
	PFNA	5.00	4.92	98.5	ng/mL	+/- 30.00%
	PFDA	5.00	5.07	101	ng/mL	+/- 30.00%
	PFUnA	5.00	4.52	90.5	ng/mL	+/- 30.00%
	PFDOA	5.00	5.92	118	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.68	93.7	ng/mL	+/- 30.00%
	PFTEDA	5.00	5.06	101	ng/mL	+/- 30.00%
	PFBS	4.42	4.23	95.6	ng/mL	+/- 30.00%
	PFPES	4.70	4.74	101	ng/mL	+/- 30.00%
	PFHXS	4.58	4.64	101	ng/mL	+/- 30.00%
	PFHPS	4.78	5.32	111	ng/mL	+/- 30.00%
	PFOS	4.65	4.77	103	ng/mL	+/- 30.00%
	PFNS	4.80	5.04	105	ng/mL	+/- 30.00%
	PFDS	4.82	4.74	98.3	ng/mL	+/- 30.00%
	PFDOS	4.85	4.44	91.5	ng/mL	+/- 30.00%
	4:2FTS	18.8	19.8	105	ng/mL	+/- 30.00%
	6:2FTS	19.0	19.5	103	ng/mL	+/- 30.00%
	8:2FTS	19.2	18.4	95.9	ng/mL	+/- 30.00%
	PFOSA	5.00	5.06	101	ng/mL	+/- 30.00%
	NMeFOSA	20.0	21.2	106	ng/mL	+/- 30.00%
	NEtFOSA	20.0	21.6	108	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	4.65	93.0	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	5.01	100	ng/mL	+/- 30.00%
	NMeFOSE	20.0	19.1	95.4	ng/mL	+/- 30.00%
	NEtFOSE	20.0	20.4	102	ng/mL	+/- 30.00%
	HFPO-DA	10.0	11.3	113	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23D0043
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315014
Standard ID:	23C0362	Sequence:	SC01502

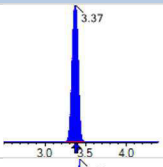
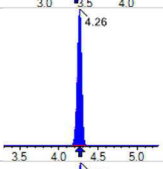
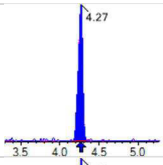
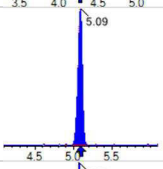
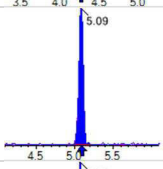
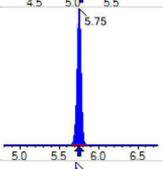
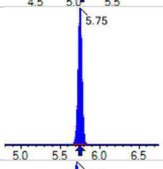
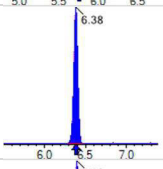
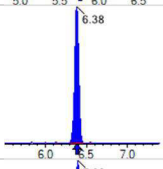
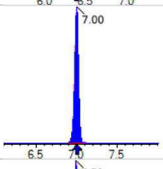
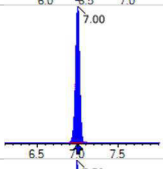
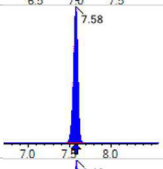
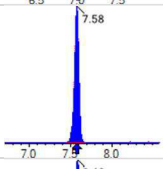
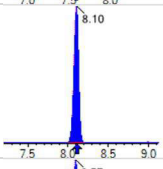
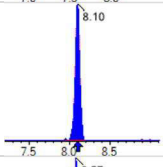
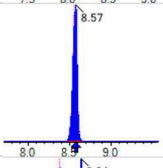
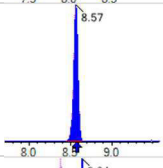
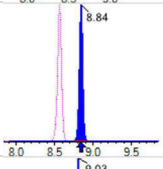
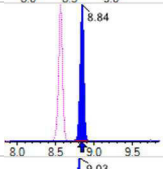
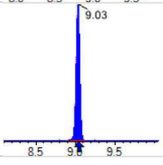
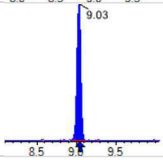
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01502-CCV1	ADONA	9.45	11.2	119	ng/mL	+/- 30.00%
	PFEESA	8.90	8.80	98.9	ng/mL	+/- 30.00%
	PFMPA	10.0	11.6	116	ng/mL	+/- 30.00%
	PFMBA	10.0	9.89	98.9	ng/mL	+/- 30.00%
	NFDHA	10.0	9.53	95.3	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	10.0	107	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	9.62	102	ng/mL	+/- 30.00%
	3:3FTCA	20.0	22.6	113	ng/mL	+/- 30.00%
	5:3FTCA	20.0	21.2	106	ng/mL	+/- 30.00%
	7:3FTCA	20.0	20.9	104	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (3)
Acquired: 2023/04/14 - 14:55

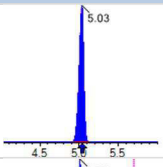
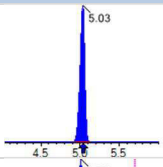
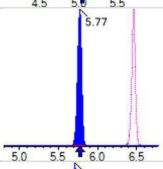
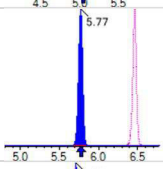
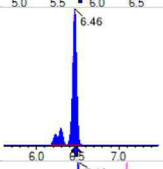
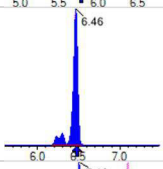
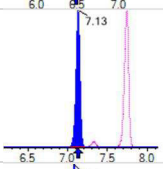
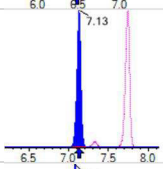
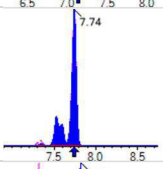
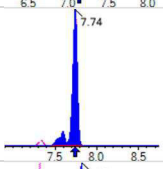
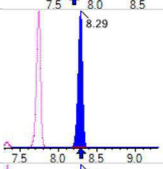
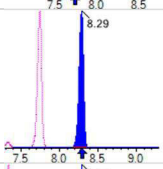
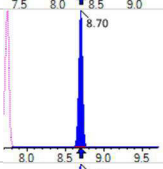
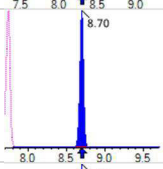
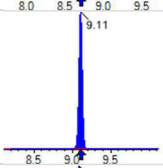
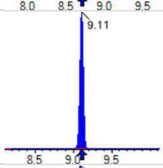
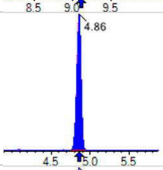
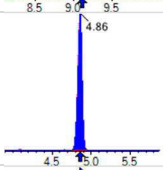
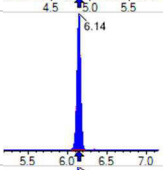
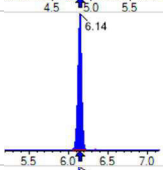
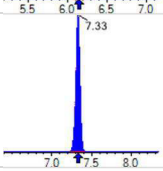
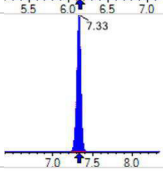
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2403967	(3.37 , 1.00) (0.00 , N/A , 0.0)	199.1	N/A 0.0 0.0	20.2467 [20.0000]	101.2%			
PFPeA	(263.0 / 219.0) 2063653 (263.0 / 69.0) 24158	(4.26 , 1.00) (0.00 , N/A , -0.1)	3101.3 348.9	0.0117 89.2 100.0	9.9876 [10.0000]	99.9%			
PFHxA	(313.0 / 269.0) 1332027 (313.0 / 119.0) 129705	(5.09 , 1.00) (0.00 , N/A , 0.1)	1202.1 851.1	0.0974 89.2 100.0	4.7069 [5.0000]	94.1%			
PFHpA	(363.0 / 319.0) 1225102 (363.0 / 169.0) 381367	(5.75 , 1.00) (0.00 , N/A , 0.1)	3705.8 3534326.9	0.3113 102.0 100.0	5.2089 [5.0000]	104.2%			
PFOA	(413.0 / 369.0) 1629177 (413.0 / 169.0) 510202	(6.38 , 1.00) (0.00 , N/A , 0.1)	2061.7 4510.9	0.3132 100.0 100.0	5.2341 [5.0000]	104.7%			
PFNA	(463.0 / 419.0) 1449915 (463.0 / 169.0) 298971	(7.00 , 1.00) (0.00 , N/A , 0.0)	10503.9 11290.3	0.2062 96.6 100.0	4.9233 [5.0000]	98.5%			
PFDA	(513.0 / 469.0) 1674769 (513.0 / 169.0) 186826	(7.58 , 1.00) (0.00 , N/A , 0.0)	2597.5 2162.2	0.1116 97.3 100.0	5.0698 [5.0000]	101.4%			
PFUnA	(563.0 / 519.0) 1450990 (563.0 / 169.0) 165187	(8.10 , 1.00) (0.00 , N/A , 0.2)	3337.5 4970.7	0.1138 96.3 100.0	4.5229 [5.0000]	90.5%			
PFDoA	(613.0 / 569.0) 1414139 (613.0 / 169.0) 208998	(8.57 , 1.00) (0.01 , N/A , 0.2)	3455.2 1239.1	0.1478 86.2 100.0	5.9185 [5.0000]	118.4%			
PFTrDA	(663.0 / 619.0) 1019648 (663.0 / 169.0) 265000	(8.84 , 1.03) (N/A , 0.00 , 0.0)	2575.4 2190.8	0.2599 104.9 100.0	4.6838 [5.0000]	93.7%			
PFTeDA	(713.0 / 669.0) 1080005 (713.0 / 169.0) 214810	(9.03 , 1.00) (0.00 , N/A , 0.1)	2375.8 757.4	0.1989 98.7 100.0	5.0582 [5.0000]	101.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (3)
Acquired: 2023/04/14 - 14:55

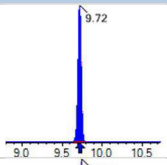
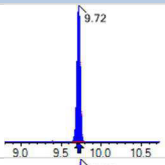
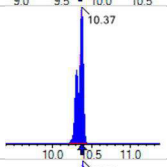
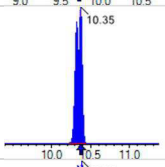
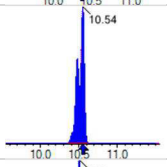
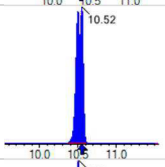
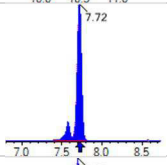
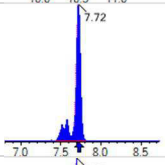
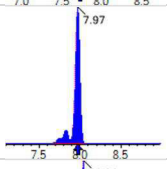
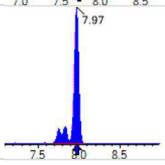
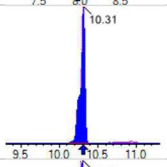
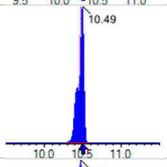
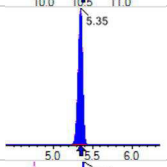
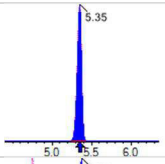
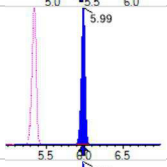
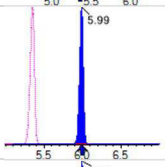
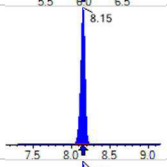
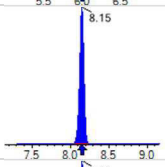
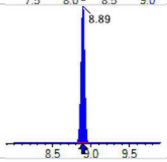
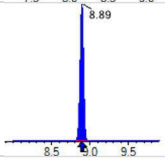
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 1990624 (299.0 / 99.0) 1319463	(5.03 , 1.00) (0.00 , N/A , 0.0)	790646.7 9524.0	0.6628 103.1 100.0	4.2258 [4.4237]	95.5%			
PFPeS	(349.0 / 80.0) 3887383 (349.0 / 99.0) 1351134	(5.77 , 0.89) (N/A , 0.00 , 0.0)	2213778.1 6136.7	0.3476 102.5 100.0	4.7384 [4.6919]	101.0%			
PFHxS	(399.0 / 80.0) 3240899 (399.0 / 99.0) 1117261	(6.46 , 1.00) (0.00 , N/A , 0.0)	29334.1 716979.7	0.3447 99.5 100.0	4.6360 [4.5549]	101.8%			
PFHpS	(449.0 / 80.0) 3564229 (449.0 / 99.0) 986614	(7.13 , 0.92) (N/A , 0.00 , 0.0)	27959440.8 867463.6	0.2768 99.8 100.0	5.3227 [4.7570]	111.9%			
PFOS	(499.0 / 80.0) 4481063 (499.0 / 99.0) 1031937	(7.74 , 1.00) (0.00 , N/A , 0.1)	2063.0 9006.5	0.2303 102.9 100.0	4.7683 [4.6375]	102.8%			
PFNS	(549.0 / 80.0) 4427707 (549.0 / 99.0) 1074758	(8.29 , 1.07) (N/A , 0.00 , 0.0)	28852.9 10175136.4	0.2427 100.3 100.0	5.0417 [4.7994]	105.0%			
PFDS	(599.0 / 80.0) 4702035 (599.0 / 99.0) 1052398	(8.70 , 1.12) (N/A , 0.00 , 0.0)	6906.7 6823.7	0.2238 99.9 100.0	4.7361 [4.8155]	98.4%			
PFDoS	(699.0 / 80.0) 3388097 (699.0 / 99.0) 730544	(9.11 , 1.18) (N/A , 0.00 , 0.0)	2958.6 2705.3	0.2156 90.1 100.0	4.4364 [4.8478]	91.5%			
4:2FTS	(327.0 / 307.0) 3510678 (327.0 / 81.0) 2166696	(4.86 , 1.00) (0.00 , N/A , 0.0)	5354.7 2326.7	0.6172 90.8 100.0	19.7716 [18.6906]	105.8%			
6:2FTS	(427.0 / 407.0) 2411125 (427.0 / 81.0) 1741091	(6.14 , 1.00) (0.00 , N/A , 0.0)	3020.3 2777.2	0.7221 102.5 100.0	19.5103 [18.9808]	102.8%			
8:2FTS	(527.0 / 507.0) 2415410 (527.0 / 81.0) 1821702	(7.33 , 1.00) (0.00 , N/A , 0.0)	3188.8 3634.8	0.7542 111.6 100.0	18.4062 [19.1658]	96.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (3)
Acquired: 2023/04/14 - 14:55

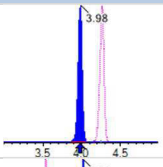
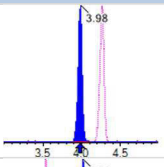
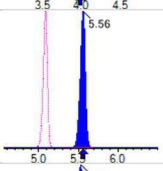
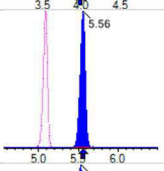
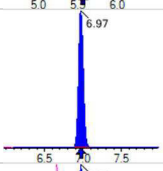
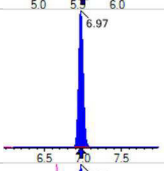
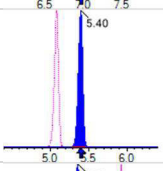
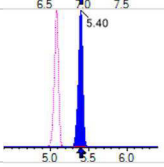
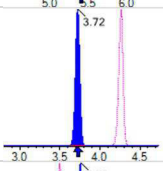
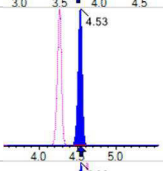
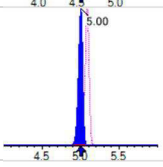
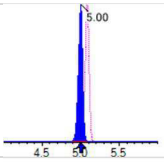
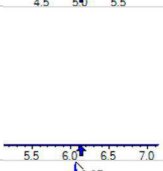
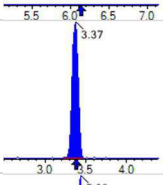
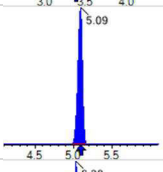
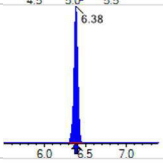
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 5426961 (498.0 / 478.0) 120484	(9.72 , 1.00) (0.00 , N/A , 0.0)	3790.2 1074.3	0.0222 89.7 100.0	5.0600 [5.0000]	101.2%			
NMeFOSA	(512.0 / 219.0) 5514935 (512.0 / 169.0) 4655993	(10.37 , 1.00) (0.00 , N/A , 1.3)	5284.5 5120.1	0.8443 97.3 100.0	21.2072 [20.0000]	106.0%			
NEtFOSA	(526.0 / 219.0) 6356064 (526.0 / 169.0) 7920101	(10.54 , 1.00) (-0.01 , N/A , 1.0)	7424.6 8364.1	1.2461 99.7 100.0	21.6086 [20.0000]	108.0%			
NMeFOSAA	(570.0 / 419.0) 643930 (570.0 / 483.0) 343022	(7.72 , 1.00) (0.00 , N/A , -0.1)	2492.6 611.7	0.5327 115.0 100.0	4.6506 [5.0000]	93.0%			
NEtFOSAA	(584.0 / 419.0) 613867 (584.0 / 526.0) 351865	(7.97 , 1.00) (0.01 , N/A , 0.1)	16293.9 2557.6	0.5732 93.9 100.0	5.0075 [5.0000]	100.1%			
NMeFOSE	(616.0 / 59.0) 2264439	(10.31 , 1.00) (0.01 , N/A , 0.0)	1930.0	N/A 0.0 0.0	19.0861 [20.0000]	95.4%			
NEtFOSE	(630.0 / 59.0) 2941723	(10.49 , 1.00) (0.01 , N/A , 0.0)	1375.5	N/A 0.0 0.0	20.3991 [20.0000]	102.0%			
HFPO-DA	(285.0 / 169.0) 1442014 (285.0 / 185.0) 3751861	(5.35 , 1.00) (0.00 , N/A , 0.0)	3148.9 3863.7	2.6018 100.0 100.0	11.2636 [10.0000]	112.6%			
ADONA	(377.0 / 85.0) 5129372 (377.0 / 251.0) 521134	(5.99 , 1.12) (N/A , 0.00 , 0.0)	5662.4 2569.0	0.1016 102.4 100.0	11.2136 [9.4270]	119.0%			
9Cl-Pf3ONS	(531.0 / 351.0) 13828833 (533.0 / 353.0) 4507107	(8.15 , 1.52) (N/A , 0.00 , 0.1)	3913.3 3433.9	0.3259 112.2 100.0	10.0414 [9.3325]	107.6%			
11Cl-PF3OUDS	(631.0 / 451.0) 7831262 (633.0 / 453.0) 2650740	(8.89 , 1.66) (N/A , 0.00 , 0.0)	4262.2 5241.2	0.3385 101.0 100.0	9.6202 [9.4321]	102.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (3)
Acquired: 2023/04/14 - 14:55

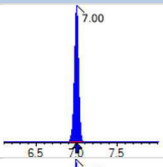
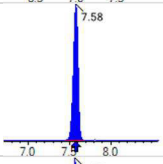
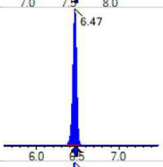
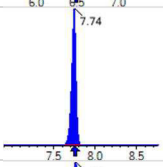
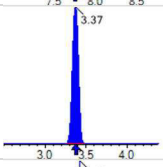
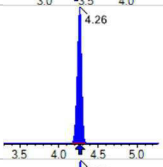
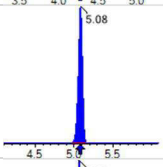
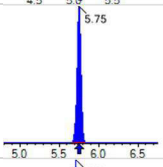
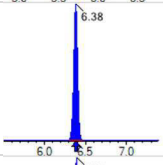
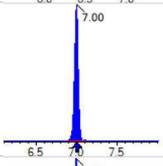
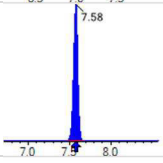
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 170761 (241.0 / 117.0) 275647	(3.98 , 0.93) (N/A , 0.00 , 0.0)	51.4 56.9	1.6142 97.8 100.0	22.5540 [20.0000]	112.8%			
5:3FTCA	(341.0 / 236.7) 942754 (341.0 / 217.0) 1556545	(5.56 , 1.09) (N/A , 0.00 , 0.1)	1165.3 1338.2	1.6511 105.3 100.0	21.1956 [20.0000]	106.0%			
7:3FTCA	(441.0 / 317.0) 1624010 (441.0 / 337.0) 1374176	(6.97 , 1.37) (N/A , 0.00 , 0.0)	1678.0 2133.3	0.8462 98.2 100.0	20.8501 [20.0000]	104.3%			
PFEESA	(315.0 / 135.0) 3132678 (315.0 / 83.0) 759089	(5.40 , 1.06) (N/A , 0.00 , -0.1)	2364.5 1810.4	0.2423 99.3 100.0	8.8001 [8.9246]	98.6%			
PFMPA	(229.0 / 85.0) 511976	(3.72 , 0.87) (N/A , 0.00 , 0.0)	4119.2	N/A 0.0 0.0	11.6357 [10.0000]	116.4%			
PFMBA	(279.0 / 85.0) 1593277	(4.53 , 1.06) (N/A , 0.00 , 0.0)	5191.1	N/A 0.0 0.0	9.8895 [10.0000]	98.9%			
NFDHA	(295.0 / 201.0) 1378748 (295.0 / 85.0) 1317390	(5.00 , 0.98) (N/A , 0.00 , 0.0)	3744.2 3659.5	0.9555 97.6 100.0	9.5316 [10.0000]	95.3%			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000 [5.0000]	N/A%			CV2,
13C3_PFBA_IIS	(216.0 / 172.0) 126174	(3.37 , N/A) (N/A , 0.00 , N/A)	1047.8	N/A	1.0350 [1.0000]	103.5% { 100.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 199732	(5.09 , N/A) (N/A , 0.00 , N/A)	36139.0	N/A	0.9848 [1.0000]	98.5% { 100.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 331194	(6.38 , N/A) (N/A , 0.00 , N/A)	2164.2	N/A	1.0422 [1.0000]	104.2% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (3)
Acquired: 2023/04/14 - 14:55

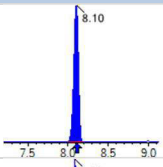
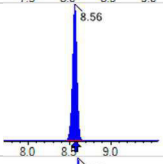
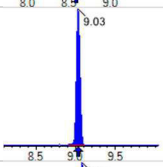
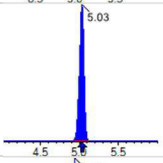
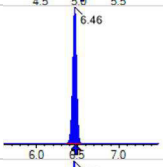
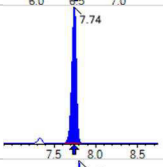
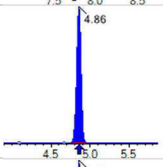
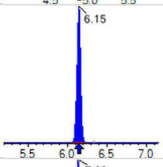
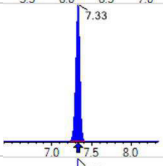
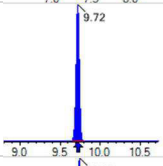
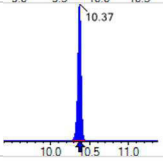
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 320860	(7.00 , N/A) (N/A , 0.00 , N/A)	3339.5	N/A	1.0572 [1.0000]	105.7% { 100.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 328605	(7.58 , N/A) (N/A , 0.00 , N/A)	5042.7	N/A	1.0127 [1.0000]	101.3% { 100.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 488091	(6.47 , N/A) (N/A , 0.00 , N/A)	27764.7	N/A	1.0898 [1.0000]	109.0% { 100.0% }			
13C4_PFOS_IIS	(503.0 / 79.9) 709566	(7.74 , N/A) (N/A , 0.00 , N/A)	2621.1	N/A	1.0434 [1.0000]	104.3% { 100.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1087026	(3.37 , N/A) (N/A , 0.00 , N/A)	4297.0	N/A	8.1257 [8.0000]	101.6% { 100.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 860018	(4.26 , N/A) (N/A , 0.00 , N/A)	3005.1	N/A	3.8441 [4.0000]	96.1% { 100.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 586725	(5.08 , N/A) (N/A , 0.00 , N/A)	2679.3	N/A	2.0725 [2.0000]	103.6% { 100.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 545701	(5.75 , N/A) (N/A , 0.00 , N/A)	5255.0	N/A	2.2068 [2.0000]	110.3% { 100.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 660232	(6.38 , N/A) (N/A , 0.00 , N/A)	3096.8	N/A	2.0197 [2.0000]	101.0% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 319280	(7.00 , N/A) (N/A , 0.00 , N/A)	8334.2	N/A	1.0591 [1.0000]	105.9% { 100.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 351449	(7.58 , N/A) (N/A , 0.00 , N/A)	1979.2	N/A	0.9534 [1.0000]	95.3% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (3)
Acquired: 2023/04/14 - 14:55

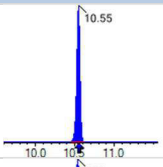
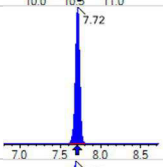
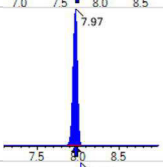
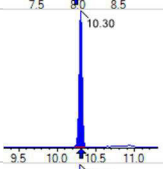
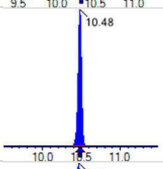
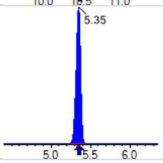
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 364614	(8.10 , N/A) (N/A , 0.00 , N/A)	5835.0	N/A	1.0655 [1.0000]	106.5% { 100.0% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 263444	(8.56 , N/A) (N/A , 0.00 , N/A)	6436.4	N/A	0.8991 [1.0000]	89.9% { 100.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 232972	(9.03 , N/A) (N/A , 0.00 , N/A)	1338.2	N/A	0.8432 [1.0000]	84.3% { 100.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1320830	(5.03 , N/A) (N/A , 0.00 , N/A)	3163.0	N/A	1.7237 [2.0000]	86.2% { 100.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 889273	(6.46 , N/A) (N/A , 0.00 , N/A)	4033.4	N/A	1.9766 [2.0000]	98.8% { 100.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1660880	(7.74 , N/A) (N/A , 0.00 , N/A)	2213.2	N/A	1.9321 [2.0000]	96.6% { 100.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 239181	(4.86 , N/A) (N/A , 0.00 , N/A)	1303.9	N/A	3.4655 [4.0000]	86.6% { 100.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 288862	(6.15 , N/A) (N/A , 0.00 , N/A)	1985.2	N/A	3.6670 [4.0000]	91.7% { 100.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 372044	(7.33 , N/A) (N/A , 0.00 , N/A)	1735.7	N/A	3.5675 [4.0000]	89.2% { 100.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2448216	(9.72 , N/A) (N/A , 0.00 , N/A)	3547.0	N/A	1.7543 [2.0000]	87.7% { 100.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 626824	(10.37 , N/A) (N/A , 0.00 , N/A)	2743.4	N/A	2.1049 [2.0000]	105.2% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (3)
Acquired: 2023/04/14 - 14:55

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 559986	(10.55 , N/A) (N/A , 0.00 , N/A)	2757.9	N/A	2.2791 [2.0000]	114.0% { 100.0% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 651591	(7.72 , N/A) (N/A , 0.00 , N/A)	2102.1	N/A	3.5365 [4.0000]	88.4% { 100.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 554337	(7.97 , N/A) (N/A , 0.00 , N/A)	4325.8	N/A	3.6681 [4.0000]	91.7% { 100.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2173424	(10.30 , N/A) (N/A , 0.00 , N/A)	1176.9	N/A	21.9840 [20.0000]	109.9% { 100.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2928648	(10.48 , N/A) (N/A , 0.00 , N/A)	1360.5	N/A	22.4129 [20.0000]	112.1% { 100.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1212777	(5.35 , N/A) (N/A , 0.00 , N/A)	2971.9	N/A	7.5937 [8.0000]	94.9% { 100.0% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23D0043
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315014
Standard ID:	23C0362	Sequence:	SC01502

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01502-CCV2	PFBA	20.0	20.0	99.9	ng/mL	+/- 30.00%
	PFPEA	10.0	10.0	100	ng/mL	+/- 30.00%
	PFHXA	5.00	4.95	99.0	ng/mL	+/- 30.00%
	PFHPA	5.00	5.04	101	ng/mL	+/- 30.00%
	PFOA	5.00	4.93	98.6	ng/mL	+/- 30.00%
	PFNA	5.00	5.31	106	ng/mL	+/- 30.00%
	PFDA	5.00	4.92	98.3	ng/mL	+/- 30.00%
	PFUnA	5.00	4.83	96.5	ng/mL	+/- 30.00%
	PFDOA	5.00	5.26	105	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.79	95.7	ng/mL	+/- 30.00%
	PFTEDA	5.00	5.02	100	ng/mL	+/- 30.00%
	PFBS	4.42	4.62	104	ng/mL	+/- 30.00%
	PFPES	4.70	4.88	104	ng/mL	+/- 30.00%
	PFHXS	4.58	4.98	109	ng/mL	+/- 30.00%
	PFHPS	4.78	5.62	118	ng/mL	+/- 30.00%
	PFOS	4.65	4.83	104	ng/mL	+/- 30.00%
	PFNS	4.80	5.09	106	ng/mL	+/- 30.00%
	PFDS	4.82	4.86	101	ng/mL	+/- 30.00%
	PFDOS	4.85	4.73	97.5	ng/mL	+/- 30.00%
	4:2FTS	18.8	20.7	110	ng/mL	+/- 30.00%
	6:2FTS	19.0	18.3	96.1	ng/mL	+/- 30.00%
	8:2FTS	19.2	19.1	99.6	ng/mL	+/- 30.00%
	PFOSA	5.00	5.49	110	ng/mL	+/- 30.00%
	NMeFOSA	20.0	21.4	107	ng/mL	+/- 30.00%
	NEtFOSA	20.0	20.8	104	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	5.18	104	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	4.92	98.4	ng/mL	+/- 30.00%
	NMeFOSE	20.0	19.9	99.5	ng/mL	+/- 30.00%
	NEtFOSE	20.0	20.5	102	ng/mL	+/- 30.00%
	HFPO-DA	10.0	10.4	104	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23D0043
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315014
Standard ID:	23C0362	Sequence:	SC01502

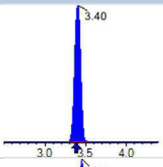
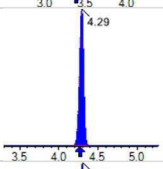
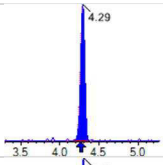
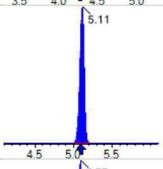
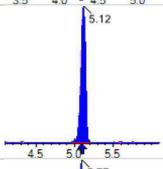
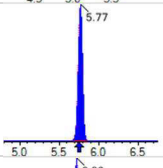
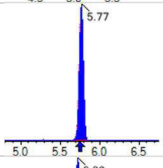
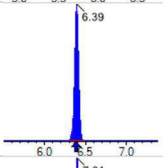
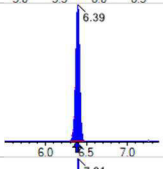
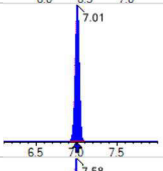
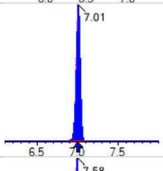
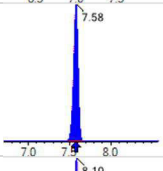
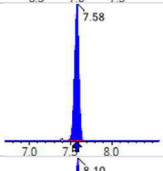
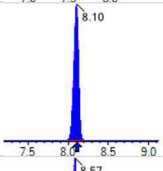
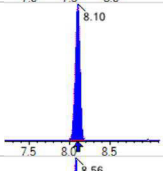
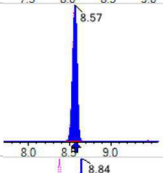
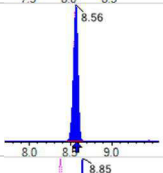
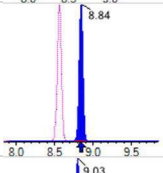
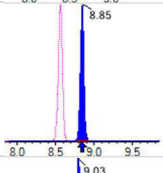
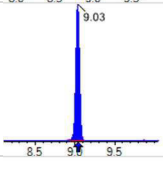
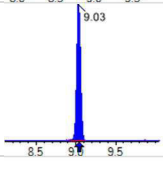
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01502-CCV2	ADONA	9.45	10.8	114	ng/mL	+/- 30.00%
	PFEESA	8.90	8.93	100	ng/mL	+/- 30.00%
	PFMPA	10.0	10.9	109	ng/mL	+/- 30.00%
	PFMBA	10.0	9.14	91.4	ng/mL	+/- 30.00%
	NFDHA	10.0	10.1	101	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	10.3	110	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	10.1	106	ng/mL	+/- 30.00%
	3:3FTCA	20.0	22.1	111	ng/mL	+/- 30.00%
	5:3FTCA	20.0	22.3	112	ng/mL	+/- 30.00%
	7:3FTCA	20.0	20.8	104	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (32)
Acquired: 2023/04/14 - 21:09

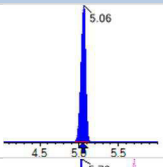
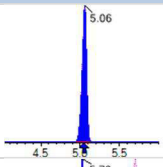
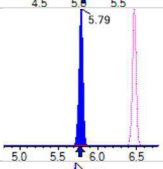
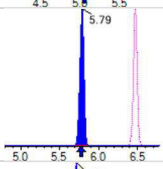
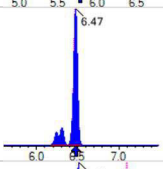
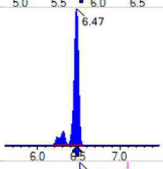
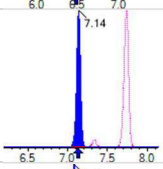
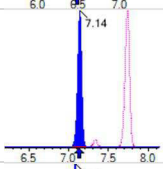
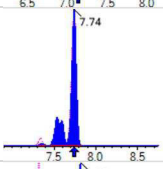
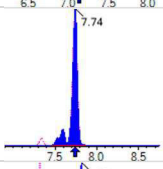
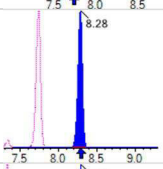
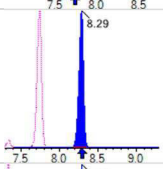
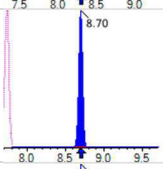
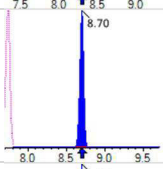
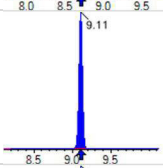
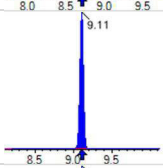
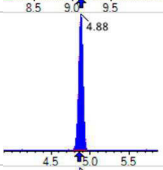
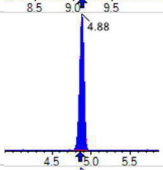
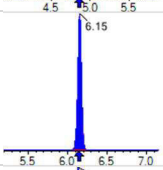
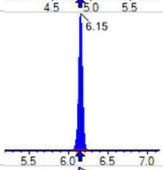
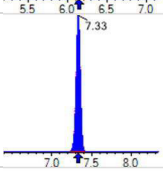
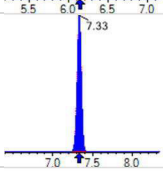
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2280771	(3.40 , 1.00) (0.00 , N/A , 0.0)	187.4	N/A 0.0 0.0	19.9895 [20.0000]	99.9%			
PFPeA	(263.0 / 219.0) 2008100 (263.0 / 69.0) 24386	(4.29 , 1.00) (0.00 , N/A , 0.0)	3102.9 397.0	0.0121 92.5 103.7	10.0128 [10.0000]	100.1%			
PFHxA	(313.0 / 269.0) 1289703 (313.0 / 119.0) 114645	(5.11 , 1.00) (0.00 , N/A , -0.3)	1553.1 21988.5	0.0889 81.5 91.3	4.9486 [5.0000]	99.0%			
PFHpA	(363.0 / 319.0) 1075891 (363.0 / 169.0) 318383	(5.77 , 1.00) (0.00 , N/A , 0.1)	3489.0 5563.7	0.2959 96.9 95.1	5.0361 [5.0000]	100.7%			
PFOA	(413.0 / 369.0) 1486289 (413.0 / 169.0) 482893	(6.39 , 1.00) (0.00 , N/A , -0.1)	3399.1 11111.6	0.3249 103.8 103.7	4.9293 [5.0000]	98.6%			
PFNA	(463.0 / 419.0) 1268398 (463.0 / 169.0) 272580	(7.01 , 1.00) (0.00 , N/A , 0.0)	32645.2 288288.7	0.2149 100.6 104.2	5.3119 [5.0000]	106.2%			
PFDA	(513.0 / 469.0) 1564218 (513.0 / 169.0) 174620	(7.58 , 1.00) (0.00 , N/A , 0.1)	2788.7 5014.4	0.1116 97.4 100.1	4.9152 [5.0000]	98.3%			
PFUnA	(563.0 / 519.0) 1419086 (563.0 / 169.0) 179695	(8.10 , 1.00) (0.00 , N/A , -0.1)	2728.0 1896.7	0.1266 107.2 111.2	4.8268 [5.0000]	96.5%			
PFDoA	(613.0 / 569.0) 1254017 (613.0 / 169.0) 198260	(8.57 , 1.00) (0.00 , N/A , 0.1)	2948.2 1482.6	0.1581 92.3 107.0	5.2577 [5.0000]	105.2%			
PFTrDA	(663.0 / 619.0) 1040103 (663.0 / 169.0) 274178	(8.84 , 1.03) (N/A , 0.00 , -0.1)	3165.6 2017.4	0.2636 106.4 101.4	4.7863 [5.0000]	95.7%			
PFTeDA	(713.0 / 669.0) 1075895 (713.0 / 169.0) 202359	(9.03 , 1.00) (0.00 , N/A , 0.0)	2363.6 1262.3	0.1881 93.3 94.6	5.0199 [5.0000]	100.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (32)
Acquired: 2023/04/14 - 21:09

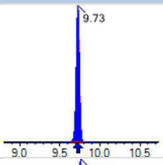
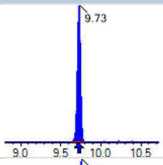
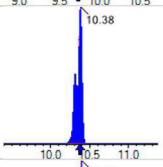
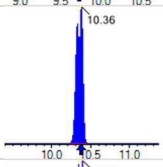
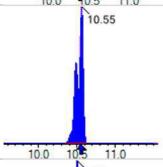
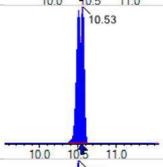
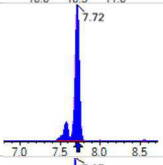
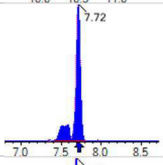
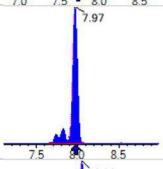
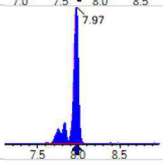
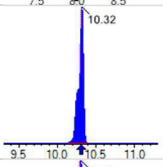
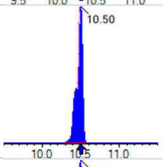
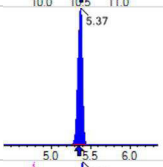
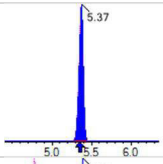
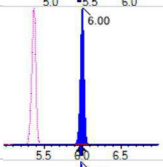
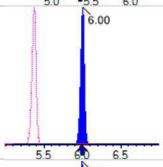
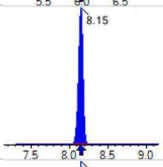
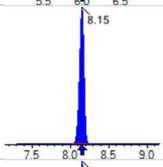
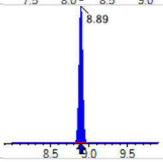
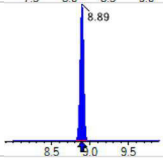
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 2081464 (299.0 / 99.0) 1255916	(5.06 , 1.00) (0.00 , N/A , -0.1)	37521.0 18940.6	0.6034 93.9 91.0	4.6157 [4.4237]	104.3%			
PFPeS	(349.0 / 80.0) 3702598 (349.0 / 99.0) 1286129	(5.79 , 0.89) (N/A , 0.02 , 0.1)	5600.9 1735836.7	0.3474 102.4 99.9	4.8772 [4.6919]	103.9%			
PFHxS	(399.0 / 80.0) 3219128 (399.0 / 99.0) 1085379	(6.47 , 1.00) (0.00 , N/A , 0.1)	2584.8 11096208.9	0.3372 97.4 97.8	4.9763 [4.5549]	109.3%			
PFHpS	(449.0 / 80.0) 3401134 (449.0 / 99.0) 904422	(7.14 , 0.92) (N/A , 0.01 , -0.1)	7165.6 17223.4	0.2659 95.9 96.1	5.6228 [4.7570]	118.2%			
PFOS	(499.0 / 80.0) 4103256 (499.0 / 99.0) 924078	(7.74 , 1.00) (0.00 , N/A , 0.0)	2061.1 5006.7	0.2252 100.6 97.8	4.8336 [4.6375]	104.2%			
PFNS	(549.0 / 80.0) 4035593 (549.0 / 99.0) 977307	(8.28 , 1.07) (N/A , 0.00 , -0.1)	51554.9 4812.4	0.2422 100.1 99.8	5.0870 [4.7994]	106.0%			
PFDS	(599.0 / 80.0) 4362656 (599.0 / 99.0) 994334	(8.70 , 1.12) (N/A , 0.00 , -0.1)	9728.2 29395.1	0.2279 101.7 101.8	4.8646 [4.8155]	101.0%			
PFDoS	(699.0 / 80.0) 3261899 (699.0 / 99.0) 746746	(9.11 , 1.18) (N/A , 0.00 , 0.0)	5871.0 2399.1	0.2289 95.7 106.2	4.7283 [4.8478]	97.5%			
4:2FTS	(327.0 / 307.0) 3764374 (327.0 / 81.0) 2117149	(4.88 , 1.00) (0.00 , N/A , 0.0)	6173.5 2015.6	0.5624 82.7 91.1	20.7183 [18.6906]	110.8%			
6:2FTS	(427.0 / 407.0) 2446197 (427.0 / 81.0) 1731565	(6.15 , 1.00) (0.00 , N/A , 0.0)	2498.1 2273.5	0.7079 100.5 98.0	18.2552 [18.9808]	96.2%			
8:2FTS	(527.0 / 507.0) 2363062 (527.0 / 81.0) 1718781	(7.33 , 1.00) (0.00 , N/A , 0.0)	3089.1 3482.6	0.7274 107.6 96.4	19.1289 [19.1658]	99.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (32)
Acquired: 2023/04/14 - 21:09

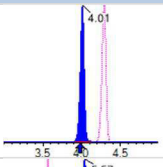
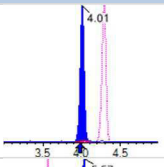
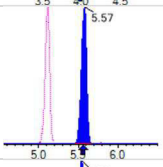
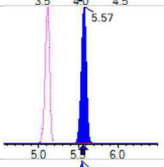
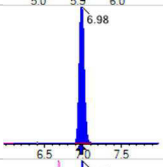
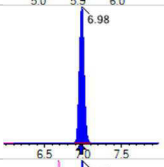
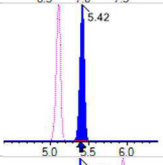
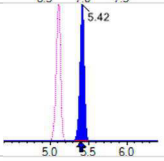
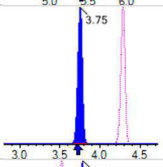
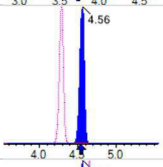
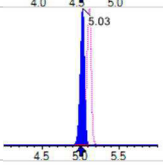
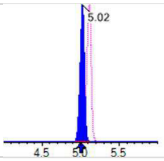
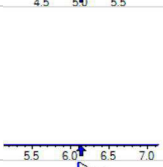
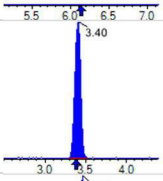
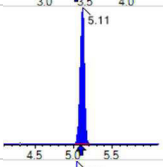
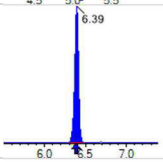
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 5280276 (498.0 / 478.0) 113692	(9.73 , 1.00) (0.00 , N/A , -0.1)	4697.0 1000.8	0.0215 87.0 97.0	5.4909 [5.0000]	109.8%			
NMeFOSA	(512.0 / 219.0) 5655805 (512.0 / 169.0) 4734558	(10.38 , 1.00) (0.00 , N/A , 1.3)	5683.5 6358.3	0.8371 96.5 99.2	21.3993 [20.0000]	107.0%			
NEtFOSA	(526.0 / 219.0) 6562222 (526.0 / 169.0) 8148963	(10.55 , 1.00) (0.00 , N/A , 1.2)	7451.4 7450.0	1.2418 99.3 99.7	20.8491 [20.0000]	104.2%			
NMeFOSAA	(570.0 / 419.0) 656652 (570.0 / 483.0) 328692	(7.72 , 1.00) (0.00 , N/A , -0.1)	3919.8 523.2	0.5006 108.1 94.0	5.1793 [5.0000]	103.6%			
NEtFOSAA	(584.0 / 419.0) 544529 (584.0 / 526.0) 342152	(7.97 , 1.00) (0.01 , N/A , -0.1)	201371.0 4463753.5	0.6283 102.9 109.6	4.9189 [5.0000]	98.4%			
NMeFOSE	(616.0 / 59.0) 2365095	(10.32 , 1.00) (0.01 , N/A , 0.0)	2488.5	N/A 0.0 0.0	19.8921 [20.0000]	99.5%			
NEtFOSE	(630.0 / 59.0) 3048324	(10.50 , 1.00) (0.01 , N/A , 0.0)	1521.7	N/A 0.0 0.0	20.4844 [20.0000]	102.4%			
HFPO-DA	(285.0 / 169.0) 1297639 (285.0 / 185.0) 3621354	(5.37 , 1.00) (0.00 , N/A , 0.0)	2847.0 2943.2	2.7907 107.3 107.3	10.4206 [10.0000]	104.2%			
ADONA	(377.0 / 85.0) 4808175 (377.0 / 251.0) 475051	(6.00 , 1.12) (N/A , 0.01 , -0.1)	6571.5 2285.5	0.0988 99.5 97.2	10.8067 [9.4270]	114.6%			
9Cl-Pf3ONS	(531.0 / 351.0) 13782168 (533.0 / 353.0) 4234547	(8.15 , 1.52) (N/A , 0.00 , 0.0)	5205.9 4522.0	0.3072 105.8 94.3	10.2886 [9.3325]	110.2%			
11Cl-PF3OUDS	(631.0 / 451.0) 7966814 (633.0 / 453.0) 2721349	(8.89 , 1.66) (N/A , 0.00 , -0.1)	6254.9 5652.3	0.3416 101.9 100.9	10.0616 [9.4321]	106.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (32)
Acquired: 2023/04/14 - 21:09

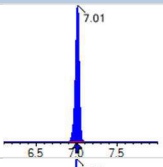
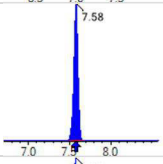
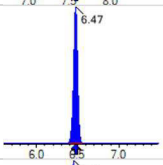
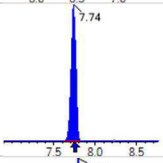
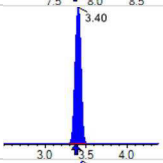
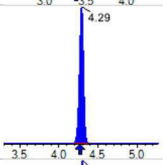
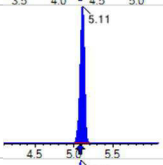
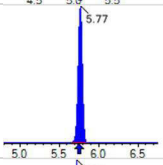
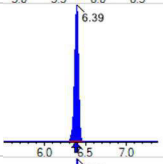
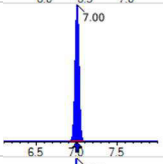
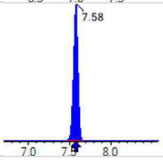
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 162764 (241.0 / 117.0) 266924	(4.01 , 0.93) (N/A , 0.03 , 0.1)	68.6 67.4	1.6399 99.3 101.6	22.1483 [20.0000]	110.7%			
5:3FTCA	(341.0 / 236.7) 913981 (341.0 / 217.0) 1481978	(5.57 , 1.09) (N/A , 0.01 , 0.2)	1440.2 1609.2	1.6215 103.4 98.2	22.3127 [20.0000]	111.6%			
7:3FTCA	(441.0 / 317.0) 1493761 (441.0 / 337.0) 1356239	(6.98 , 1.37) (N/A , 0.01 , 0.0)	1591.5 1597.3	0.9079 105.4 107.3	20.8241 [20.0000]	104.1%			
PFEESA	(315.0 / 135.0) 2928185 (315.0 / 83.0) 707713	(5.42 , 1.06) (N/A , 0.02 , 0.0)	5258.0 1548.3	0.2417 99.0 99.7	8.9318 [8.9246]	100.1%			
PFMPA	(229.0 / 85.0) 463846	(3.75 , 0.88) (N/A , 0.03 , 0.0)	4212.9	N/A 0.0 0.0	10.8608 [10.0000]	108.6%			
PFMBA	(279.0 / 85.0) 1429656	(4.56 , 1.06) (N/A , 0.02 , 0.0)	4460.6	N/A 0.0 0.0	9.1424 [10.0000]	91.4%			
NFDHA	(295.0 / 201.0) 1340663 (295.0 / 85.0) 1269080	(5.03 , 0.98) (N/A , 0.02 , 0.1)	3320.8 3178.2	0.9466 96.6 99.1	10.0639 [10.0000]	100.6%			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000 [5.0000]	N/A%			CV2,
13C3_PFBA_IIS	(216.0 / 172.0) 118900	(3.40 , N/A) (N/A , 0.03 , N/A)	999.5	N/A	0.9753 [1.0000]	97.5% { 94.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 187037	(5.11 , N/A) (N/A , 0.03 , N/A)	3548.2	N/A	0.9222 [1.0000]	92.2% { 93.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 341887	(6.39 , N/A) (N/A , 0.01 , N/A)	1797.2	N/A	1.0758 [1.0000]	107.6% { 103.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (32)
Acquired: 2023/04/14 - 21:09

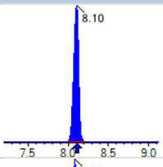
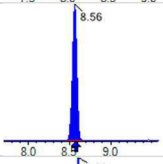
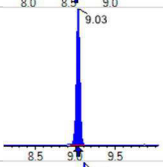
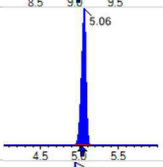
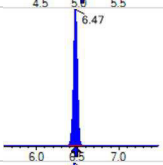
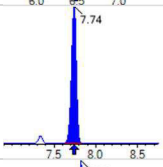
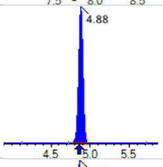
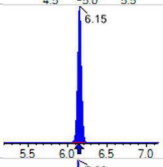
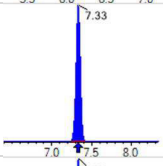
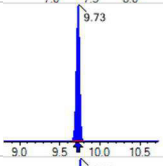
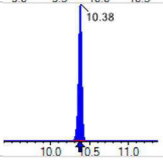
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 286647	(7.01 , N/A) (N/A , 0.01 , N/A)	3979337.3	N/A	0.9445 [1.0000]	94.4% { 89.3% }			
13C2_PFDA_IIS	(515.0 / 470.1) 307672	(7.58 , N/A) (N/A , 0.00 , N/A)	6266.6	N/A	0.9482 [1.0000]	94.8% { 93.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 456567	(6.47 , N/A) (N/A , 0.01 , N/A)	48248.0	N/A	1.0194 [1.0000]	101.9% { 93.5% }			
13C4_PFOS_IIS	(503.0 / 79.9) 571451	(7.74 , N/A) (N/A , -0.01 , N/A)	1482.8	N/A	0.8403 [1.0000]	84.0% { 80.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1044591	(3.40 , N/A) (N/A , 0.03 , N/A)	5081.1	N/A	8.2862 [8.0000]	103.6% { 96.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 834761	(4.29 , N/A) (N/A , 0.02 , N/A)	3881.4	N/A	3.9845 [4.0000]	99.6% { 97.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 540340	(5.11 , N/A) (N/A , 0.03 , N/A)	1595.9	N/A	2.0382 [2.0000]	101.9% { 92.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 495673	(5.77 , N/A) (N/A , 0.01 , N/A)	2423.6	N/A	2.1405 [2.0000]	107.0% { 90.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 639576	(6.39 , N/A) (N/A , 0.01 , N/A)	4485.8	N/A	1.8953 [2.0000]	94.8% { 96.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 258880	(7.00 , N/A) (N/A , 0.01 , N/A)	3025.6	N/A	0.9613 [1.0000]	96.1% { 81.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 338577	(7.58 , N/A) (N/A , 0.00 , N/A)	8122.6	N/A	0.9809 [1.0000]	98.1% { 96.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (32)
Acquired: 2023/04/14 - 21:09

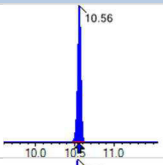
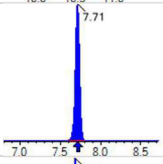
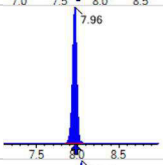
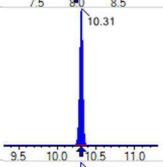
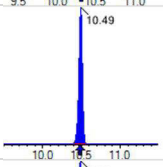
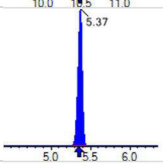
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 334150	(8.10 , N/A) (N/A , 0.00 , N/A)	2639.1	N/A	1.0429 [1.0000]	104.3% { 91.6% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 262973	(8.56 , N/A) (N/A , 0.00 , N/A)	5554.1	N/A	0.9586 [1.0000]	95.9% { 99.8% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 233857	(9.03 , N/A) (N/A , 0.00 , N/A)	1010.6	N/A	0.9040 [1.0000]	90.4% { 100.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1264441	(5.06 , N/A) (N/A , 0.03 , N/A)	2876.4	N/A	1.7640 [2.0000]	88.2% { 95.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 822898	(6.47 , N/A) (N/A , 0.01 , N/A)	2315.3	N/A	1.9554 [2.0000]	97.8% { 92.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1500291	(7.74 , N/A) (N/A , 0.00 , N/A)	1302.6	N/A	2.1671 [2.0000]	108.4% { 90.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 244747	(4.88 , N/A) (N/A , 0.02 , N/A)	1138.5	N/A	3.7910 [4.0000]	94.8% { 102.3% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 313211	(6.15 , N/A) (N/A , 0.01 , N/A)	2069.5	N/A	4.2507 [4.0000]	106.3% { 108.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 350229	(7.33 , N/A) (N/A , 0.00 , N/A)	2903.6	N/A	3.5902 [4.0000]	89.8% { 94.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2195079	(9.73 , N/A) (N/A , 0.01 , N/A)	3098.5	N/A	1.9531 [2.0000]	97.7% { 89.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 637066	(10.38 , N/A) (N/A , 0.01 , N/A)	2780.4	N/A	2.6564 [2.0000]	132.8% { 101.6% }			S2,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (32)
Acquired: 2023/04/14 - 21:09

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 599211	(10.56 , N/A) (N/A , 0.01 , N/A)	3272.9	N/A	3.0282 [2.0000]	151.4% { 107.0% }			S2,
D3_MeFOSAA_EIS	(573.0 / 419.0) 596627	(7.71 , N/A) (N/A , 0.00 , N/A)	1598.5	N/A	4.0208 [4.0000]	100.5% { 91.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 500580	(7.96 , N/A) (N/A , 0.00 , N/A)	15726.4	N/A	4.1129 [4.0000]	102.8% { 90.3% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2178056	(10.31 , N/A) (N/A , 0.01 , N/A)	2021.8	N/A	27.3556 [20.0000]	136.8% { 100.2% }			S2,
D9_NEtFOSE_EIS	(639.0 / 58.9) 3022139	(10.49 , N/A) (N/A , 0.01 , N/A)	1334.6	N/A	28.7183 [20.0000]	143.6% { 103.2% }			S2,
13C3_HFPODA_EIS	(287.0 / 169.0) 1179646	(5.37 , N/A) (N/A , 0.02 , N/A)	2406.9	N/A	7.8875 [8.0000]	98.6% { 97.3% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23D0043
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315014
Standard ID:	23C0362	Sequence:	SC01502

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01502-CCV3	PFBA	20.0	21.6	108	ng/mL	+/- 30.00%
	PFPEA	10.0	10.3	103	ng/mL	+/- 30.00%
	PFHXA	5.00	5.24	105	ng/mL	+/- 30.00%
	PFHPA	5.00	5.00	100	ng/mL	+/- 30.00%
	PFOA	5.00	5.32	106	ng/mL	+/- 30.00%
	PFNA	5.00	5.17	103	ng/mL	+/- 30.00%
	PFDA	5.00	4.87	97.4	ng/mL	+/- 30.00%
	PFUnA	5.00	4.88	97.6	ng/mL	+/- 30.00%
	PFDOA	5.00	5.30	106	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.96	99.2	ng/mL	+/- 30.00%
	PFTEDA	5.00	4.84	96.7	ng/mL	+/- 30.00%
	PFBS	4.42	4.94	112	ng/mL	+/- 30.00%
	PFPES	4.70	4.61	98.1	ng/mL	+/- 30.00%
	PFHXS	4.58	4.23	92.3	ng/mL	+/- 30.00%
	PFHPS	4.78	5.15	108	ng/mL	+/- 30.00%
	PFOS	4.65	4.32	93.0	ng/mL	+/- 30.00%
	PFNS	4.80	4.57	95.2	ng/mL	+/- 30.00%
	PFDS	4.82	4.21	87.4	ng/mL	+/- 30.00%
	PFDOS	4.85	4.29	88.4	ng/mL	+/- 30.00%
	4:2FTS	18.8	20.4	108	ng/mL	+/- 30.00%
	6:2FTS	19.0	18.8	99.1	ng/mL	+/- 30.00%
	8:2FTS	19.2	21.5	112	ng/mL	+/- 30.00%
	PFOSA	5.00	4.96	99.2	ng/mL	+/- 30.00%
	NMeFOSA	20.0	20.0	100	ng/mL	+/- 30.00%
	NEtFOSA	20.0	20.8	104	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	4.82	96.3	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	5.08	102	ng/mL	+/- 30.00%
	NMeFOSE	20.0	21.1	106	ng/mL	+/- 30.00%
	NEtFOSE	20.0	19.5	97.7	ng/mL	+/- 30.00%
	HFPO-DA	10.0	11.8	118	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23D0043
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315014
Standard ID:	23C0362	Sequence:	SC01502

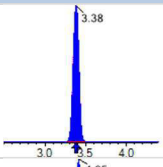
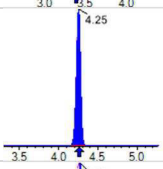
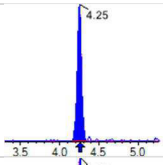
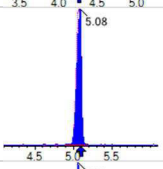
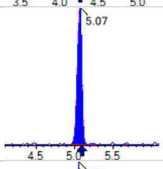
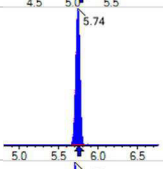
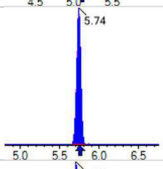
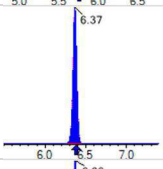
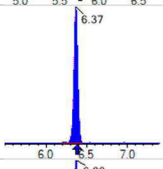
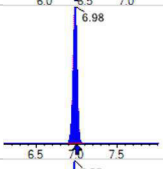
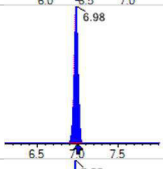
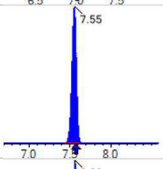
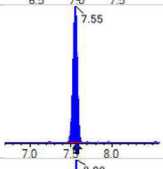
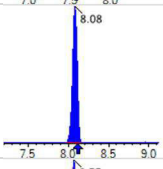
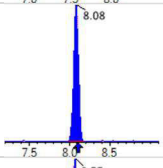
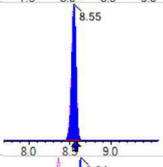
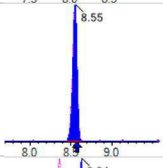
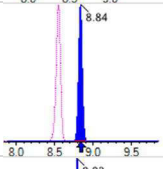
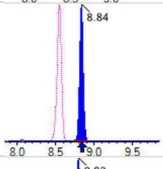
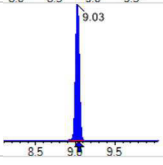
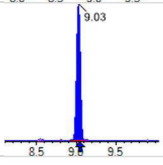
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01502-CCV3	**ADONA**	**9.45**	**12.7**	**134**	**ng/mL**	+/- 30.00%
	PFEESA	8.90	9.63	108	ng/mL	+/- 30.00%
	PFMPA	10.0	12.0	120	ng/mL	+/- 30.00%
	PFMBA	10.0	10.4	104	ng/mL	+/- 30.00%
	NFDHA	10.0	9.40	94.0	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	11.4	122	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	11.8	125	ng/mL	+/- 30.00%
	3:3FTCA	20.0	23.0	115	ng/mL	+/- 30.00%
	5:3FTCA	20.0	22.8	114	ng/mL	+/- 30.00%
	7:3FTCA	20.0	21.9	110	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (52)
Acquired: 2023/04/15 - 01:26

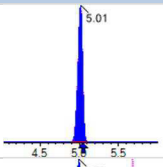
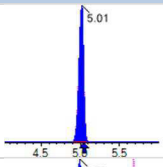
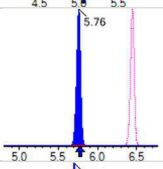
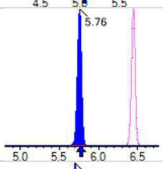
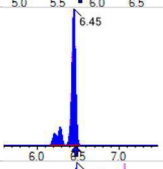
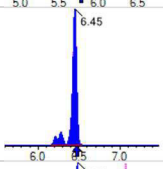
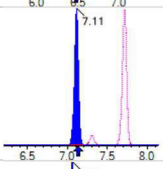
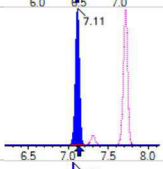
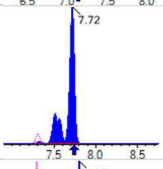
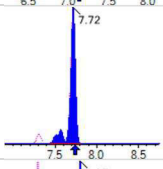
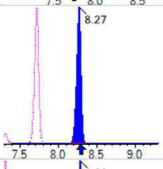
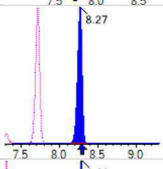
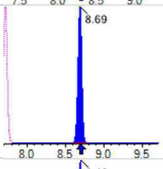
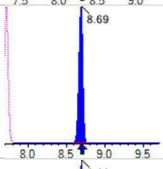
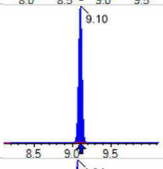
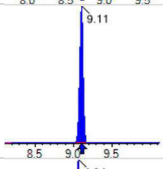
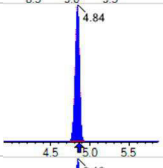
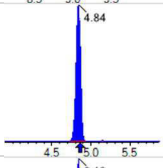
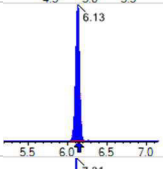
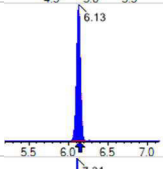
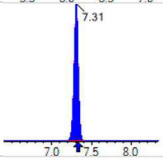
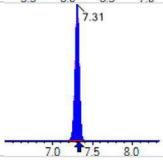
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2447159	(3.38 , 1.00) (0.00 , N/A , 0.0)	211.5	N/A 0.0 0.0	21.6316 [20.0000]	108.2%			
PFPeA	(263.0 / 219.0) 2192680 (263.0 / 69.0) 21377	(4.25 , 1.00) (0.00 , N/A , 0.1)	3072.3 348.4	0.0097 74.3 83.3	10.3372 [10.0000]	103.4%			
PFHxA	(313.0 / 269.0) 1582120 (313.0 / 119.0) 131183	(5.08 , 1.00) (0.01 , N/A , 0.5)	973.0 712.9	0.0829 76.0 85.2	5.2367 [5.0000]	104.7%			
PFHpA	(363.0 / 319.0) 1320869 (363.0 / 169.0) 404287	(5.74 , 1.00) (0.00 , N/A , 0.1)	2982.6 2221.5	0.3061 100.3 98.3	4.9981 [5.0000]	100.0%			
PFOA	(413.0 / 369.0) 1750723 (413.0 / 169.0) 566961	(6.37 , 1.00) (0.00 , N/A , 0.0)	1884.1 3246.8	0.3238 103.4 103.4	5.3219 [5.0000]	106.4%			
PFNA	(463.0 / 419.0) 1595019 (463.0 / 169.0) 335945	(6.98 , 1.00) (0.00 , N/A , 0.0)	6542.3 9006207.8	0.2106 98.6 102.1	5.1668 [5.0000]	103.3%			
PFDA	(513.0 / 469.0) 1992161 (513.0 / 169.0) 230881	(7.55 , 1.00) (0.00 , N/A , 0.0)	3110.6 747.5	0.1159 101.1 103.9	4.8724 [5.0000]	97.4%			
PFUnA	(563.0 / 519.0) 1754107 (563.0 / 169.0) 203537	(8.08 , 1.00) (0.00 , N/A , 0.2)	2970.6 1170.4	0.1160 98.2 101.9	4.8790 [5.0000]	97.6%			
PFDoA	(613.0 / 569.0) 1732846 (613.0 / 169.0) 286648	(8.55 , 1.00) (0.00 , N/A , 0.0)	3351.8 955.4	0.1654 96.5 111.9	5.2960 [5.0000]	105.9%			
PFTrDA	(663.0 / 619.0) 1478650 (663.0 / 169.0) 372944	(8.84 , 1.03) (N/A , -0.01 , 0.0)	3774.2 1868.2	0.2522 101.8 97.0	4.9600 [5.0000]	99.2%			
PFTeDA	(713.0 / 669.0) 1532485 (713.0 / 169.0) 308477	(9.03 , 1.00) (0.00 , N/A , 0.0)	2192.2 933.0	0.2013 99.9 101.2	4.8370 [5.0000]	96.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (52)
Acquired: 2023/04/15 - 01:26

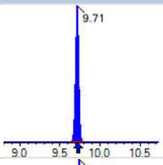
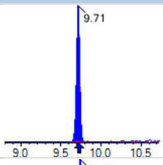
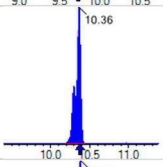
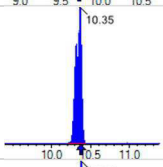
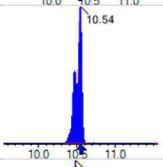
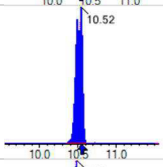
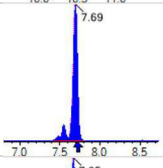
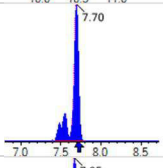
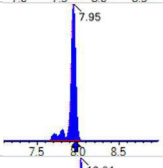
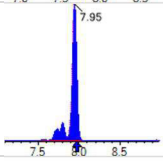
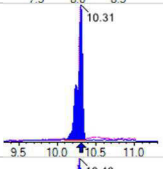
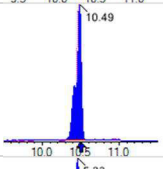
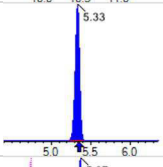
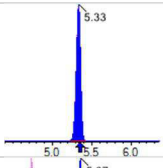
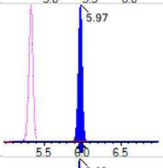
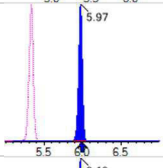
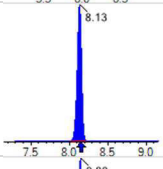
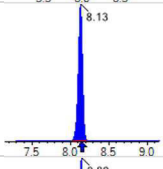
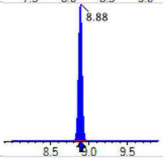
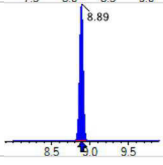
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 2163947 (299.0 / 99.0) 1368431	(5.01 , 1.00) (0.00 , N/A , 0.0)	7510.6 4856.7	0.6324 98.4 95.4	4.9434 [4.4237]	111.7%			
PFPeS	(349.0 / 80.0) 4248652 (349.0 / 99.0) 1516259	(5.76 , 0.89) (N/A , -0.01 , 0.1)	54500.5 14215.6	0.3569 105.3 102.7	4.6095 [4.6919]	98.2%			
PFHxS	(399.0 / 80.0) 3319375 (399.0 / 99.0) 1182728	(6.45 , 1.00) (0.00 , N/A , 0.0)	28928.2 2406.6	0.3563 102.9 103.4	4.2264 [4.5549]	92.8%			
PFHpS	(449.0 / 80.0) 4093769 (449.0 / 99.0) 1141578	(7.11 , 0.92) (N/A , -0.02 , 0.1)	59184.5 30782.5	0.2789 100.5 100.7	5.1491 [4.7570]	108.2%			
PFOS	(499.0 / 80.0) 4824988 (499.0 / 99.0) 1130074	(7.72 , 1.00) (0.00 , N/A , 0.0)	1913.2 3627.6	0.2342 104.7 101.7	4.3243 [4.6375]	93.2%			
PFNS	(549.0 / 80.0) 4766249 (549.0 / 99.0) 1167872	(8.27 , 1.07) (N/A , -0.02 , 0.0)	38777.3 7964.9	0.2450 101.2 100.9	4.5711 [4.7994]	95.2%			
PFDS	(599.0 / 80.0) 4967157 (599.0 / 99.0) 1169668	(8.69 , 1.13) (N/A , -0.01 , 0.0)	4327.3 3629.7	0.2355 105.1 105.2	4.2140 [4.8155]	87.5%			
PFDoS	(699.0 / 80.0) 3885759 (699.0 / 99.0) 849454	(9.10 , 1.18) (N/A , 0.00 , -0.1)	4059.6 2597.0	0.2186 91.3 101.4	4.2854 [4.8478]	88.4%			
4:2FTS	(327.0 / 307.0) 5008225 (327.0 / 81.0) 2823632	(4.84 , 1.00) (0.00 , N/A , 0.1)	5451.4 2168.7	0.5638 82.9 91.4	20.3726 [18.6906]	109.0%			
6:2FTS	(427.0 / 407.0) 3467150 (427.0 / 81.0) 2484832	(6.13 , 1.00) (0.00 , N/A , 0.1)	3198.1 2474.4	0.7167 101.8 99.2	18.8232 [18.9808]	99.2%			
8:2FTS	(527.0 / 507.0) 3634298 (527.0 / 81.0) 2970483	(7.31 , 1.00) (0.00 , N/A , 0.0)	4241.6 3117.4	0.8173 121.0 108.4	21.5274 [19.1658]	112.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (52)
Acquired: 2023/04/15 - 01:26

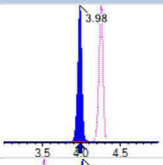
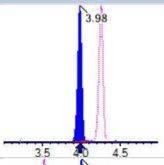
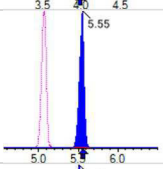
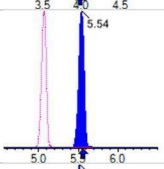
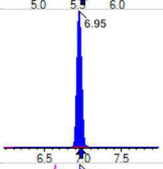
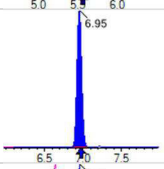
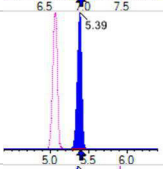
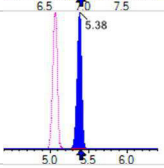
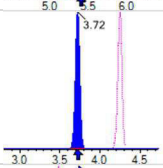
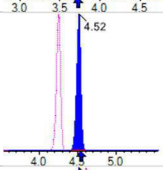
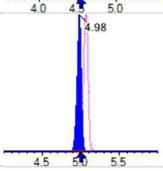
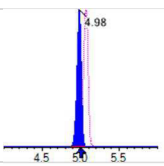
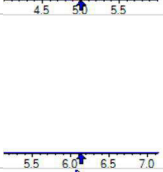
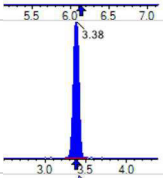
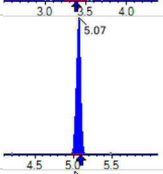
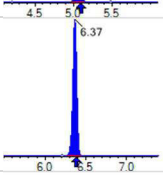
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 5417765 (498.0 / 478.0) 127849	(9.71 , 1.00) (0.00 , N/A , 0.0)	5389.7 720.3	0.0236 95.3 106.3	4.9605 [5.0000]	99.2%			
NMeFOSA	(512.0 / 219.0) 2528712 (512.0 / 169.0) 2185088	(10.36 , 1.00) (0.00 , N/A , 0.9)	3487.8 3498.5	0.8641 99.6 102.4	20.0324 [20.0000]	100.2%			
NEtFOSA	(526.0 / 219.0) 3873824 (526.0 / 169.0) 4878654	(10.54 , 1.00) (0.00 , N/A , 1.4)	4401.4 4970.5	1.2594 100.7 101.1	20.8132 [20.0000]	104.1%			
NMeFOSAA	(570.0 / 419.0) 977281 (570.0 / 483.0) 460336	(7.69 , 1.00) (0.00 , N/A , -0.1)	2516.3 577.5	0.4710 101.7 88.4	4.8165 [5.0000]	96.3%			
NEtFOSAA	(584.0 / 419.0) 922932 (584.0 / 526.0) 516133	(7.95 , 1.00) (0.01 , N/A , -0.1)	538896.4 1450.3	0.5592 91.6 97.6	5.0826 [5.0000]	101.7%			
NMeFOSE	(616.0 / 59.0) 681458	(10.31 , 1.00) (0.01 , N/A , 0.0)	489.9	N/A 0.0 0.0	21.1210 [20.0000]	105.6%			
NEtFOSE	(630.0 / 59.0) 1488202	(10.49 , 1.00) (0.01 , N/A , 0.0)	721.6	N/A 0.0 0.0	19.5401 [20.0000]	97.7%			
HFPO-DA	(285.0 / 169.0) 1456595 (285.0 / 185.0) 3901443	(5.33 , 1.00) (0.00 , N/A , 0.0)	2889.6 3784.9	2.6785 103.0 102.9	11.7664 [10.0000]	117.7%			
ADONA	(377.0 / 85.0) 5600757 (377.0 / 251.0) 525610	(5.97 , 1.12) (N/A , -0.01 , 0.0)	5108.7 1572.6	0.0938 94.5 92.4	12.6627 [9.4270]	134.3%			CV2,
9Cl-Pf3ONS	(531.0 / 351.0) 15194003 (533.0 / 353.0) 4637708	(8.13 , 1.53) (N/A , -0.02 , 0.0)	4763.7 3124.6	0.3052 105.1 93.7	11.4098 [9.3325]	122.3%			
11Cl-PF3OUDS	(631.0 / 451.0) 9292069 (633.0 / 453.0) 3350074	(8.88 , 1.67) (N/A , -0.01 , -0.1)	8443.8 4718.4	0.3605 107.6 106.5	11.8048 [9.4321]	125.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (52)
Acquired: 2023/04/15 - 01:26

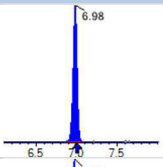
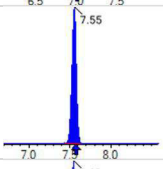
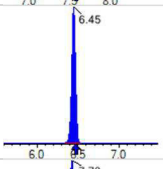
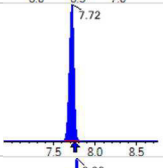
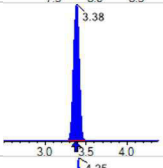
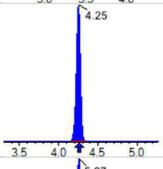
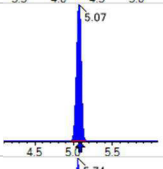
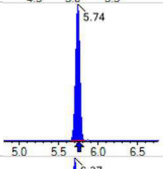
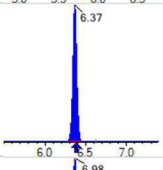
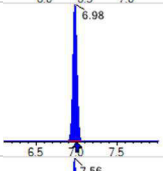
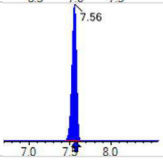
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 179145 (241.0 / 117.0) 267739	(3.98 , 0.94) (N/A , 0.00 , 0.1)	54.7 59.0	1.4945 90.5 92.6	23.0485 [20.0000]	115.2%			
5:3FTCA	(341.0 / 236.7) 1084197 (341.0 / 217.0) 1687999	(5.55 , 1.09) (N/A , -0.01 , 0.3)	1423.3 1701.7	1.5569 99.3 94.3	22.8323 [20.0000]	114.2%			
7:3FTCA	(441.0 / 317.0) 1821518 (441.0 / 337.0) 1526941	(6.95 , 1.37) (N/A , -0.02 , 0.0)	1656.7 1974.8	0.8383 97.3 99.1	21.9051 [20.0000]	109.5%			
PFEESA	(315.0 / 135.0) 3658244 (315.0 / 83.0) 798107	(5.39 , 1.06) (N/A , -0.01 , 0.1)	5272.6 1247.6	0.2182 89.4 90.0	9.6258 [8.9246]	107.9%			
PFMPA	(229.0 / 85.0) 540352	(3.72 , 0.88) (N/A , 0.00 , 0.0)	4928.8	N/A 0.0 0.0	11.9624 [10.0000]	119.6%			
PFMBA	(279.0 / 85.0) 1714813	(4.52 , 1.06) (N/A , -0.02 , 0.0)	5316.8	N/A 0.0 0.0	10.3681 [10.0000]	103.7%			
NFDHA	(295.0 / 201.0) 1451418 (295.0 / 85.0) 1360781	(4.98 , 0.98) (N/A , -0.02 , 0.1)	2488.9 2628.3	0.9376 95.7 98.1	9.3987 [10.0000]	94.0%			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000 [5.0000]	N/A%			CV2,
13C3_PFBA_IIS	(216.0 / 172.0) 109245	(3.38 , N/A) (N/A , 0.01 , N/A)	859.5	N/A	0.8961 [1.0000]	89.6% { 86.6% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 96909	(5.07 , N/A) (N/A , -0.02 , N/A)	1812.7	N/A	0.4778 [1.0000]	47.8% { 48.5% }			IS1,
13C4_PFOA_IIS	(417.0 / 372.0) 326892	(6.37 , N/A) (N/A , -0.02 , N/A)	2495.6	N/A	1.0286 [1.0000]	102.9% { 98.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (52)
Acquired: 2023/04/15 - 01:26

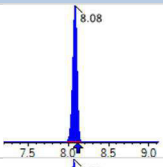
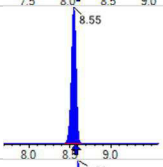
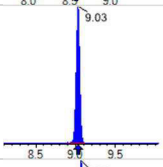
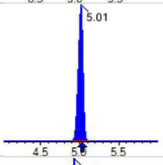
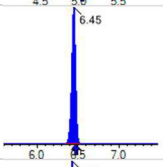
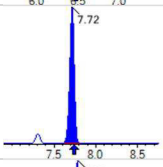
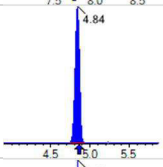
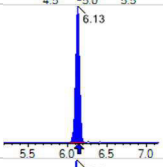
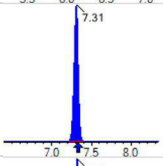
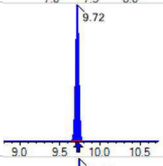
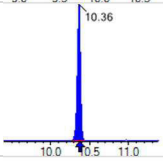
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 311328	(6.98 , N/A) (N/A , -0.02 , N/A)	1497.3	N/A	1.0258 [1.0000]	102.6% { 97.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 341162	(7.55 , N/A) (N/A , -0.02 , N/A)	3196.4	N/A	1.0514 [1.0000]	105.1% { 103.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 507129	(6.45 , N/A) (N/A , -0.02 , N/A)	2930.3	N/A	1.1323 [1.0000]	113.2% { 103.9% }			
13C4_PFOS_IIS	(503.0 / 79.9) 793213	(7.72 , N/A) (N/A , -0.03 , N/A)	1970.8	N/A	1.1664 [1.0000]	116.6% { 111.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1035712	(3.38 , N/A) (N/A , 0.01 , N/A)	4302.0	N/A	8.9419 [8.0000]	111.8% { 95.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 882890	(4.25 , N/A) (N/A , -0.01 , N/A)	2833.8	N/A	8.1335 [4.0000]	203.3% { 102.7% }			S2,
13C5_PFHxA_EIS	(318.0 / 273.0) 626385	(5.07 , N/A) (N/A , -0.02 , N/A)	1836.2	N/A	4.5601 [2.0000]	228.0% { 106.8% }			S2,
13C4_PFHpA_EIS	(367.0 / 322.0) 613174	(5.74 , N/A) (N/A , -0.02 , N/A)	1882.4	N/A	5.1107 [2.0000]	255.5% { 112.4% }			S2,
13C8_PFOA_EIS	(421.0 / 376.0) 697791	(6.37 , N/A) (N/A , -0.01 , N/A)	2197.3	N/A	2.1627 [2.0000]	108.1% { 105.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 334682	(6.98 , N/A) (N/A , -0.02 , N/A)	1262.8	N/A	1.1442 [1.0000]	114.4% { 104.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 434996	(7.56 , N/A) (N/A , -0.02 , N/A)	2814.1	N/A	1.1366 [1.0000]	113.7% { 123.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (52)
Acquired: 2023/04/15 - 01:26

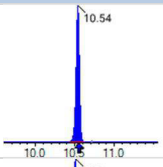
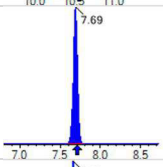
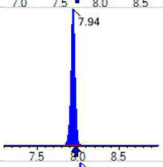
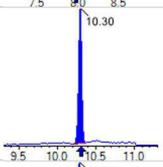
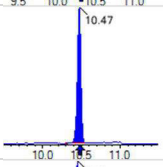
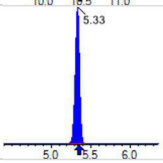
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 408610	(8.08 , N/A) (N/A , -0.02 , N/A)	4221.9	N/A	1.1501 [1.0000]	115.0% { 112.1% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 360759	(8.55 , N/A) (N/A , -0.02 , N/A)	1760.4	N/A	1.1859 [1.0000]	118.6% { 136.9% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 345691	(9.03 , N/A) (N/A , 0.00 , N/A)	1174.7	N/A	1.2051 [1.0000]	120.5% { 148.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1227409	(5.01 , N/A) (N/A , -0.02 , N/A)	2243.0	N/A	1.5416 [2.0000]	77.1% { 92.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 999088	(6.45 , N/A) (N/A , -0.02 , N/A)	2739.2	N/A	2.1373 [2.0000]	106.9% { 112.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1971941	(7.72 , N/A) (N/A , -0.03 , N/A)	1538.3	N/A	2.0520 [2.0000]	102.6% { 118.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 331143	(4.84 , N/A) (N/A , -0.02 , N/A)	1455.9	N/A	4.6178 [4.0000]	115.4% { 138.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 430539	(6.13 , N/A) (N/A , -0.01 , N/A)	1504.0	N/A	5.2604 [4.0000]	131.5% { 149.0% }			S2,
13C2_8:2FTS_EIS	(529.0 / 81.0) 478625	(7.31 , N/A) (N/A , -0.02 , N/A)	2303.4	N/A	4.4172 [4.0000]	110.4% { 128.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2493067	(9.72 , N/A) (N/A , 0.00 , N/A)	3693.5	N/A	1.5981 [2.0000]	79.9% { 101.8% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 304267	(10.36 , N/A) (N/A , -0.01 , N/A)	1237.6	N/A	0.9140 [2.0000]	45.7% { 48.5% }			S1,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (52)
Acquired: 2023/04/15 - 01:26

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 354337	(10.54 , N/A) (N/A , -0.01 , N/A)	1451.5	N/A	1.2901 [2.0000]	64.5% { 63.3% }			S1,
D3_MeFOSAA_EIS	(573.0 / 419.0) 954847	(7.69 , N/A) (N/A , -0.03 , N/A)	2876.1	N/A	4.6359 [4.0000]	115.9% { 146.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 821103	(7.94 , N/A) (N/A , -0.03 , N/A)	5104.8	N/A	4.8603 [4.0000]	121.5% { 148.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 591053	(10.30 , N/A) (N/A , -0.01 , N/A)	357.1	N/A	5.3480 [20.0000]	26.7% { 27.2% }			S1,
D9_NEtFOSE_EIS	(639.0 / 58.9) 1546718	(10.47 , N/A) (N/A , -0.01 , N/A)	664.0	N/A	10.5888 [20.0000]	52.9% { 52.8% }			S1,
13C3_HFPODA_EIS	(287.0 / 169.0) 1172696	(5.33 , N/A) (N/A , -0.02 , N/A)	2296.4	N/A	15.1334 [8.0000]	189.2% { 96.7% }			S2,

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01442
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

Lab Sample ID	Analyte	Found	Units	RL	C
SC01442-ICB1	PFBA	0.00	ng/mL	0.40	U
	PFPEA	0.00	ng/mL	0.20	U
	PFHXA	0.00	ng/mL	0.10	U
	PFHPA	0.00	ng/mL	0.10	U
	PFOA	0.00	ng/mL	0.10	U
	PFNA	0.00	ng/mL	0.10	U
	PFDA	0.00	ng/mL	0.10	U
	PFUnA	0.00	ng/mL	0.10	U
	PFDOA	0.00	ng/mL	0.10	U
	PFTRDA	0.00	ng/mL	0.10	U
	PFTEDA	0.00	ng/mL	0.10	U
	PFBS	0.00	ng/mL	0.10	U
	PFPES	0.00	ng/mL	0.10	U
	PFHXS	0.00	ng/mL	0.10	U
	PFHPS	0.00	ng/mL	0.10	U
	PFOS	0.00	ng/mL	0.10	U
	PFNS	0.00	ng/mL	0.10	U
	PFDS	0.00	ng/mL	0.10	U
	PFDOS	0.00	ng/mL	0.10	U
	4:2FTS	0.00	ng/mL	0.40	U
	6:2FTS	0.00	ng/mL	0.40	U
	8:2FTS	0.00	ng/mL	0.40	U
	PFOSA	0.00	ng/mL	0.10	U
	NMeFOSA	0.00	ng/mL	0.40	U
	NEtFOSA	0.00	ng/mL	0.40	U
	NMeFOSAA	0.0159	ng/mL	0.10	U
	NEtFOSAA	0.0160	ng/mL	0.10	U
	NMeFOSE	0.00	ng/mL	0.40	U
	NEtFOSE	0.00	ng/mL	0.40	U
	HFPO-DA	0.00	ng/mL	0.20	U
	ADONA	0.00	ng/mL	0.20	U
	PFEESA	0.00	ng/mL	0.20	U
	PFMPA	0.00	ng/mL	0.20	U

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01442
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

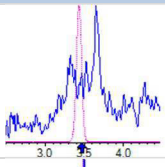
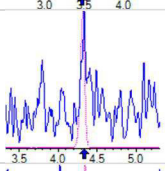
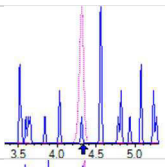
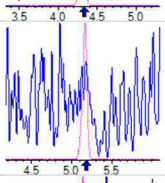
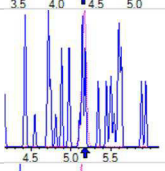
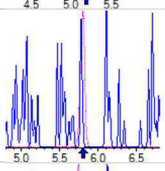
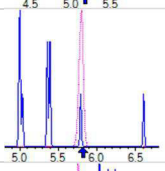
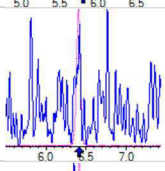
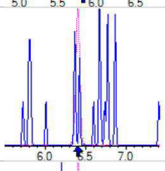
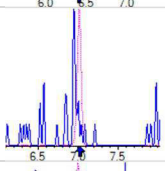
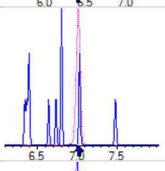
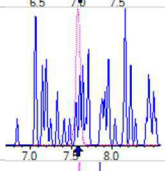
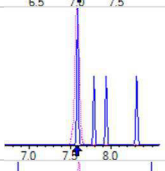
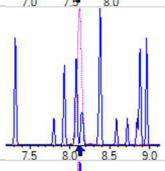
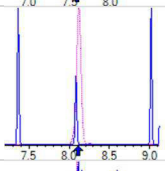
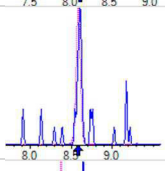
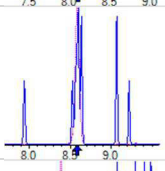
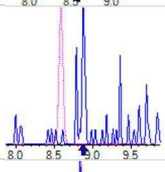
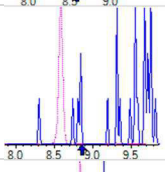
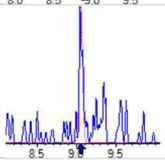
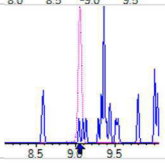
Lab Sample ID	Analyte	Found	Units	RL	C
SC01442-ICB1	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.08	ng/mL		
	13C5-PFPEA	4.33	ng/mL		
	13C5-PFHXA	2.22	ng/mL		
	13C4-PFHPA	2.17	ng/mL		
	13C8-PFOA	2.09	ng/mL		
	13C9-PFNA	1.01	ng/mL		
	13C6-PFDA	0.986	ng/mL		
	13C7-PFUnA	1.01	ng/mL		
	13C2-PFDOA	0.989	ng/mL		
	13C2-PFTEDA	1.01	ng/mL		
	13C3-PFBS	2.07	ng/mL		
	13C3-PFHXS	2.08	ng/mL		
	13C8-PFOS	1.91	ng/mL		
	13C2-4:2FTS	4.35	ng/mL		
	13C2-6:2FTS	4.23	ng/mL		
	13C2-8:2FTS	3.77	ng/mL		
	13C8-PFOSA	2.05	ng/mL		
	D3-NMEFOSA	1.93	ng/mL		
	D5-NETFOSA	2.07	ng/mL		
	D3-NMEFOSAA	3.66	ng/mL		
	D5-NETFOSAA	3.88	ng/mL		
	D7-NMEFOSE	20.9	ng/mL		
	D9-NETFOSE	20.2	ng/mL		
	13C3-HFPO-DA	9.42	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (9)
Acquired: 2023/04/12 - 11:55

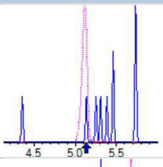
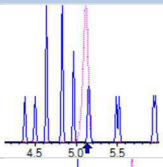
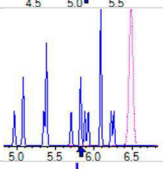
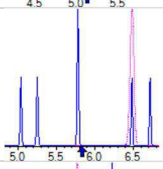
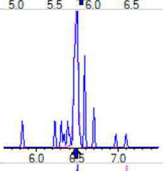
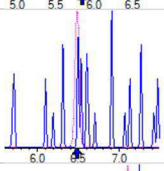
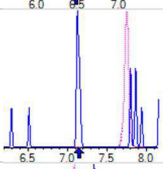
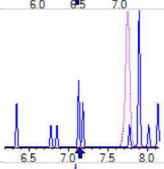
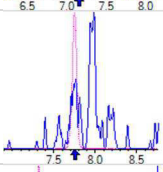
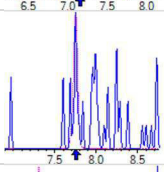
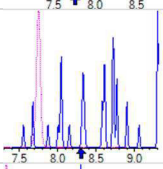
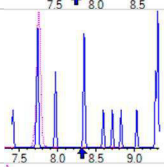
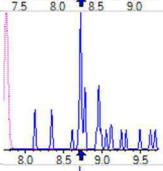
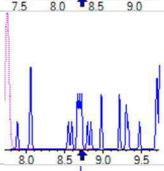
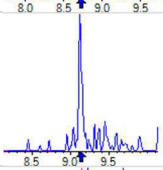
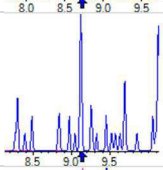
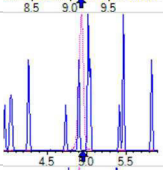
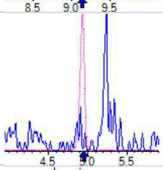
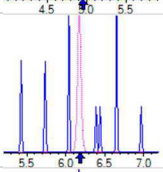
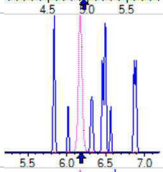
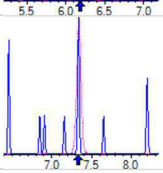
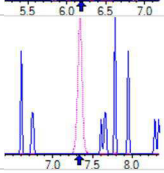
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (9)
Acquired: 2023/04/12 - 11:55

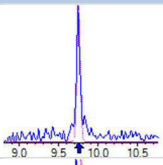
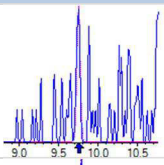
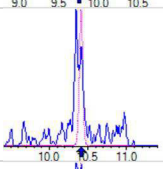
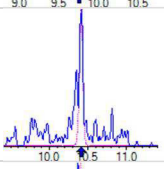
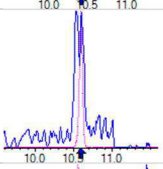
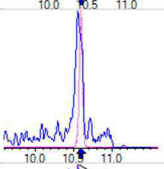
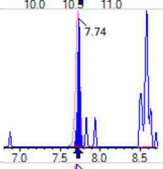
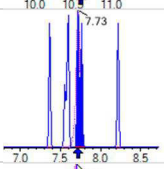
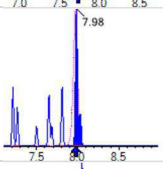
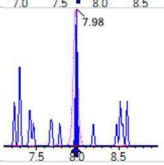
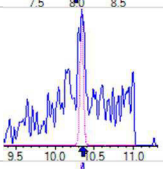
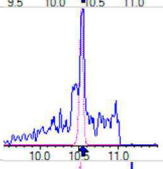
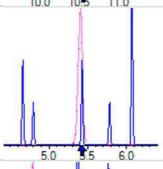
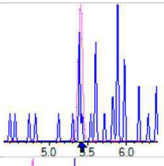
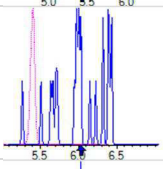
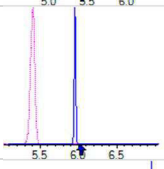
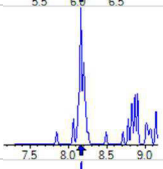
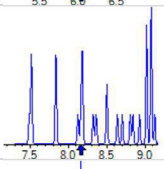
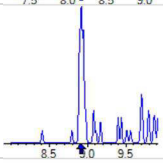
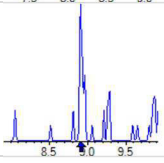
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) N/A (399.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) N/A (499.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (9)
Acquired: 2023/04/12 - 11:55

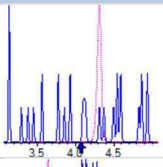
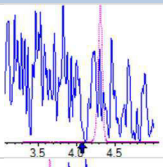
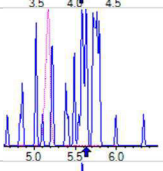
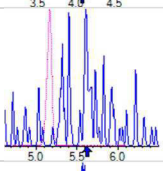
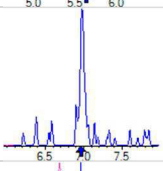
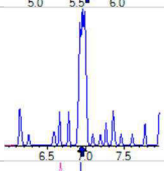
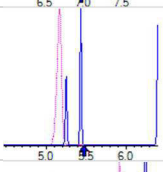
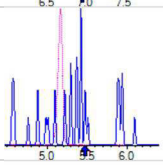
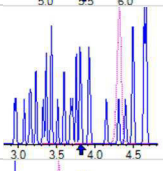
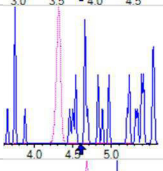
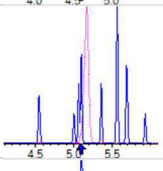
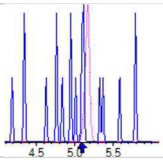
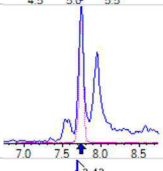
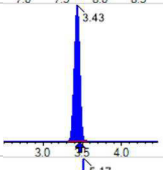
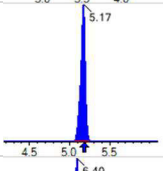
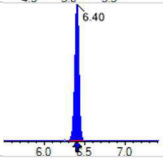
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) 2313 (570.0 / 483.0) 890	(7.74 , 1.00) (0.01 , N/A , 0.1)	144070.0 349.0	0.3846 83.0 83.0	0.0159	N/A			
NEtFOSAA	(584.0 / 419.0) 2106 (584.0 / 526.0) 1334	(7.98 , 1.00) (0.01 , N/A , 0.0)	198812.7 787.7	0.6336 103.8 103.8	0.0160	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (9)
Acquired: 2023/04/12 - 11:55

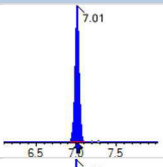
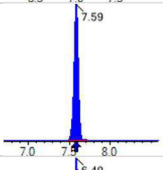
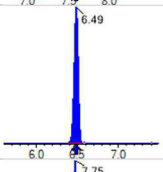
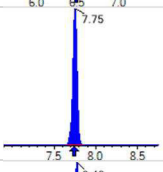
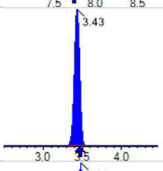
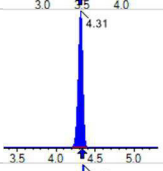
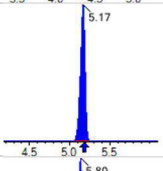
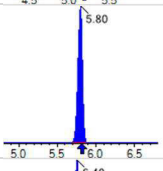
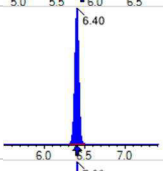
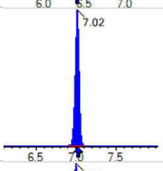
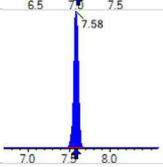
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 131235	(3.43 , N/A) (N/A , -0.03 , N/A)	1628.2	N/A	1.0765 [1.0000]	107.7% { 109.7% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 185679	(5.17 , N/A) (N/A , 0.00 , N/A)	5681.7	N/A	0.9155 [1.0000]	91.5% { 94.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 304308	(6.40 , N/A) (N/A , 0.00 , N/A)	4393.1	N/A	0.9576 [1.0000]	95.8% { 94.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (9)
Acquired: 2023/04/12 - 11:55

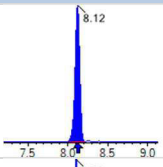
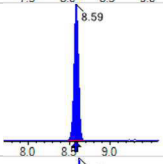
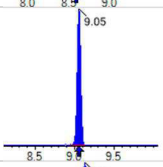
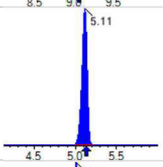
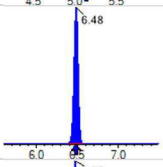
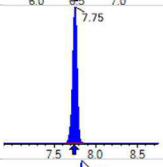
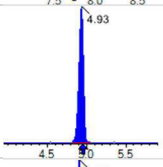
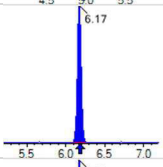
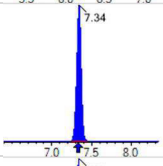
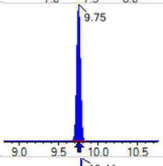
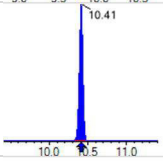
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 308904	(7.01 , N/A) (N/A , 0.00 , N/A)	3567.6	N/A	1.0178 [1.0000]	101.8% { 100.6% }			
13C2_PFDA_IIS	(515.0 / 470.1) 327675	(7.59 , N/A) (N/A , 0.01 , N/A)	5568.3	N/A	1.0099 [1.0000]	101.0% { 107.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 436121	(6.49 , N/A) (N/A , 0.00 , N/A)	6535.2	N/A	0.9738 [1.0000]	97.4% { 105.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 722040	(7.75 , N/A) (N/A , 0.01 , N/A)	2474.0	N/A	1.0617 [1.0000]	106.2% { 111.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1124775	(3.43 , N/A) (N/A , -0.03 , N/A)	4934.8	N/A	8.0837 [8.0000]	101.0% { 107.6% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 900156	(4.31 , N/A) (N/A , -0.02 , N/A)	3084.4	N/A	4.3281 [4.0000]	108.2% { 100.3% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 584169	(5.17 , N/A) (N/A , -0.01 , N/A)	1994.3	N/A	2.2196 [2.0000]	111.0% { 99.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 498435	(5.80 , N/A) (N/A , -0.01 , N/A)	5963.9	N/A	2.1682 [2.0000]	108.4% { 101.7% }			
13C8_PFOA_EIS	(421.0 / 376.0) 626445	(6.40 , N/A) (N/A , 0.00 , N/A)	12440.6	N/A	2.0857 [2.0000]	104.3% { 102.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 293038	(7.02 , N/A) (N/A , 0.00 , N/A)	331.5	N/A	1.0097 [1.0000]	101.0% { 97.9% }			
13C6_PFDA_EIS	(519.0 / 474.0) 362434	(7.58 , N/A) (N/A , 0.00 , N/A)	2783444.1	N/A	0.9859 [1.0000]	98.6% { 100.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (9)
Acquired: 2023/04/12 - 11:55

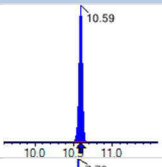
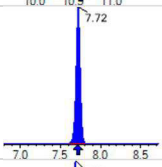
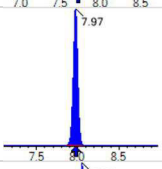
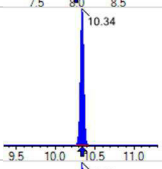
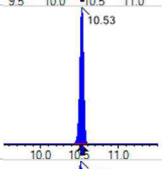
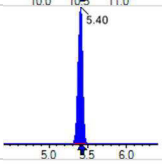
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 346095	(8.12 , N/A) (N/A , 0.01 , N/A)	3509.0	N/A	1.0142 [1.0000]	101.4% { 95.9% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 288939	(8.59 , N/A) (N/A , 0.00 , N/A)	1242.0	N/A	0.9889 [1.0000]	98.9% { 100.6% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 278849	(9.05 , N/A) (N/A , 0.00 , N/A)	1703.7	N/A	1.0121 [1.0000]	101.2% { 92.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1415839	(5.11 , N/A) (N/A , -0.01 , N/A)	2202.9	N/A	2.0678 [2.0000]	103.4% { 101.5% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 834657	(6.48 , N/A) (N/A , 0.00 , N/A)	2982.0	N/A	2.0763 [2.0000]	103.8% { 103.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1668953	(7.75 , N/A) (N/A , 0.01 , N/A)	3037.3	N/A	1.9079 [2.0000]	95.4% { 100.2% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 268025	(4.93 , N/A) (N/A , -0.01 , N/A)	1129.5	N/A	4.3462 [4.0000]	108.7% { 107.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 297714	(6.17 , N/A) (N/A , 0.00 , N/A)	1565.5	N/A	4.2298 [4.0000]	105.7% { 101.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 351386	(7.34 , N/A) (N/A , 0.01 , N/A)	1633.2	N/A	3.7710 [4.0000]	94.3% { 97.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2910258	(9.75 , N/A) (N/A , 0.00 , N/A)	3517.8	N/A	2.0494 [2.0000]	102.5% { 112.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 584406	(10.41 , N/A) (N/A , 0.00 , N/A)	2601.8	N/A	1.9286 [2.0000]	96.4% { 112.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01442-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-12A (9)
Acquired: 2023/04/12 - 11:55

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 516706	(10.59 , N/A) (N/A , 0.00 , N/A)	2770.3	N/A	2.0667 [2.0000]	103.3% { 112.3% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 685329	(7.72 , N/A) (N/A , 0.01 , N/A)	2916.8	N/A	3.6554 [4.0000]	91.4% { 101.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 597006	(7.97 , N/A) (N/A , 0.01 , N/A)	105443.5	N/A	3.8822 [4.0000]	97.1% { 111.2% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2103430	(10.34 , N/A) (N/A , 0.00 , N/A)	1611.6	N/A	20.9085 [20.0000]	104.5% { 110.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2683494	(10.53 , N/A) (N/A , 0.00 , N/A)	1830.2	N/A	20.1820 [20.0000]	100.9% { 106.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1398112	(5.40 , N/A) (N/A , -0.01 , N/A)	2742.0	N/A	9.4167 [8.0000]	117.7% { 108.3% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01502
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

Lab Sample ID	Analyte	Found	Units	RL	C
SC01502-CCB1	PFBA	0.00	ng/mL	0.40	U
	PFPEA	0.00	ng/mL	0.20	U
	PFHXA	0.00	ng/mL	0.10	U
	PFHPA	0.00	ng/mL	0.10	U
	PFOA	0.00	ng/mL	0.10	U
	PFNA	0.00	ng/mL	0.10	U
	PFDA	0.00	ng/mL	0.10	U
	PFUnA	0.00	ng/mL	0.10	U
	PFDOA	0.00	ng/mL	0.10	U
	PFTRDA	0.00	ng/mL	0.10	U
	PFTEDA	0.00	ng/mL	0.10	U
	PFBS	0.00	ng/mL	0.10	U
	PFPES	0.00	ng/mL	0.10	U
	PFHXS	0.00	ng/mL	0.10	U
	PFHPS	0.00	ng/mL	0.10	U
	PFOS	0.00	ng/mL	0.10	U
	PFNS	0.00	ng/mL	0.10	U
	PFDS	0.00	ng/mL	0.10	U
	PFDOS	0.00	ng/mL	0.10	U
	4:2FTS	0.00	ng/mL	0.40	U
	6:2FTS	0.00	ng/mL	0.40	U
	8:2FTS	0.00	ng/mL	0.40	U
	PFOSA	0.00	ng/mL	0.10	U
	NMeFOSA	0.00	ng/mL	0.40	U
	NEtFOSA	0.00	ng/mL	0.40	U
	NMeFOSAA	0.00	ng/mL	0.10	U
	NEtFOSAA	0.00	ng/mL	0.10	U
	NMeFOSE	0.00	ng/mL	0.40	U
	NEtFOSE	0.00	ng/mL	0.40	U
	HFPO-DA	0.00	ng/mL	0.20	U
	ADONA	0.00	ng/mL	0.20	U
	PFEESA	0.00	ng/mL	0.20	U
	PFMPA	0.00	ng/mL	0.20	U

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01502
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

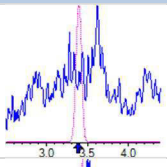
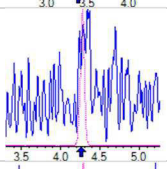
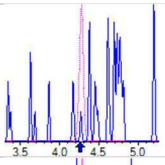
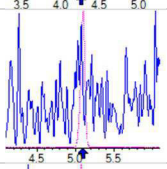
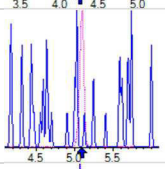
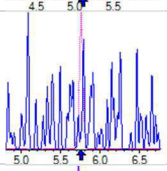
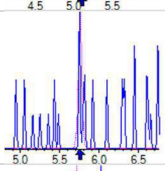
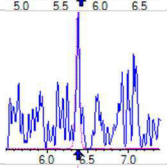
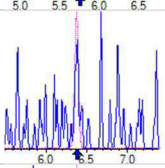
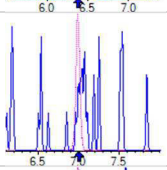
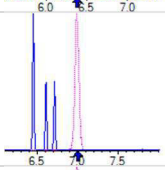
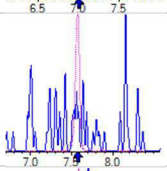
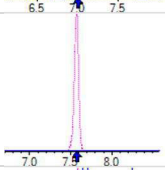
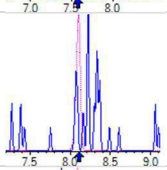
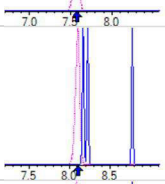
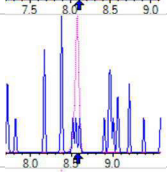
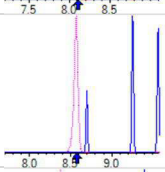
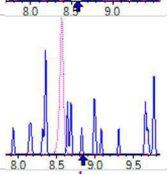
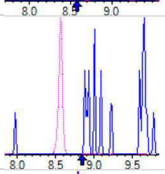
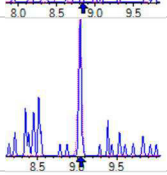
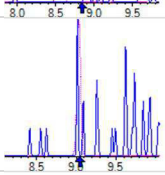
Lab Sample ID	Analyte	Found	Units	RL	C
SC01502-CCB1	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.03	ng/mL		
	13C5-PFPEA	3.92	ng/mL		
	13C5-PFHXA	2.00	ng/mL		
	13C4-PFHPA	2.29	ng/mL		
	13C8-PFOA	2.03	ng/mL		
	13C9-PFNA	1.09	ng/mL		
	13C6-PFDA	1.05	ng/mL		
	13C7-PFUnA	1.12	ng/mL		
	13C2-PFDOA	0.999	ng/mL		
	13C2-PFTEDA	0.916	ng/mL		
	13C3-PFBS	1.60	ng/mL		
	13C3-PFHXS	2.00	ng/mL		
	13C8-PFOS	1.95	ng/mL		
	13C2-4:2FTS	3.46	ng/mL		
	13C2-6:2FTS	4.33	ng/mL		
	13C2-8:2FTS	3.11	ng/mL		
	13C8-PFOSA	1.81	ng/mL		
	D3-NMEFOSA	2.01	ng/mL		
	D5-NETFOSA	2.18	ng/mL		
	D3-NMEFOSAA	3.30	ng/mL		
	D5-NETFOSAA	3.44	ng/mL		
	D7-NMEFOSE	21.6	ng/mL		
	D9-NETFOSE	22.2	ng/mL		
	13C3-HFPO-DA	7.64	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (1)
Acquired: 2023/04/14 - 14:29

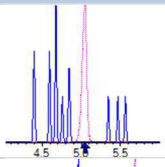
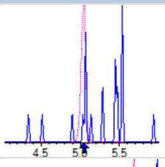
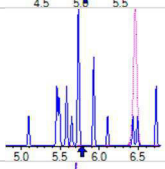
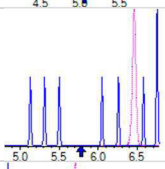
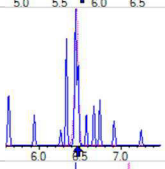
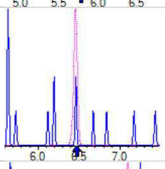
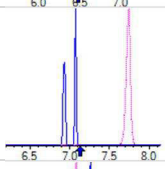
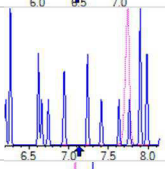
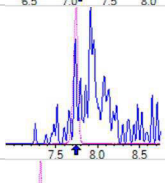
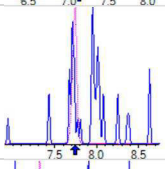
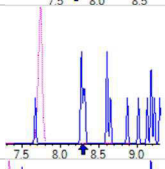
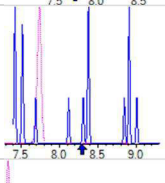
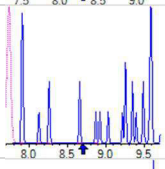
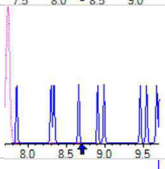
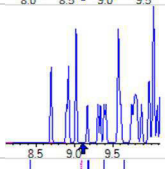
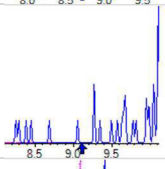
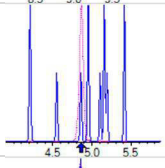
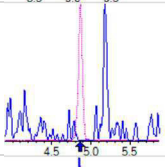
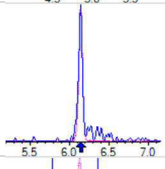
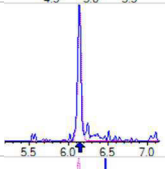
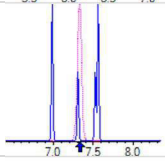
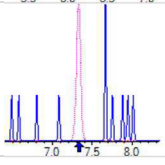
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (1)
Acquired: 2023/04/14 - 14:29

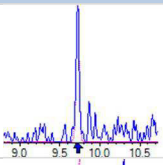
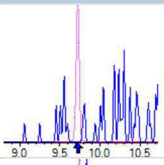
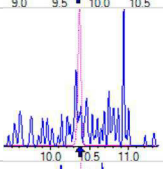
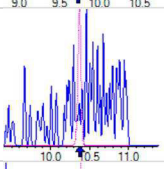
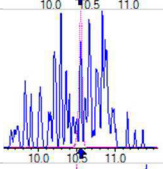
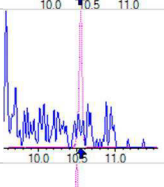
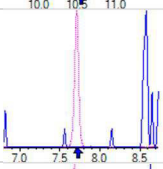
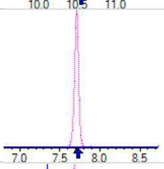
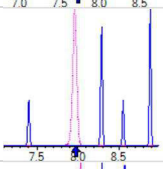
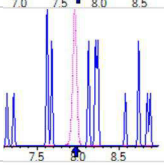
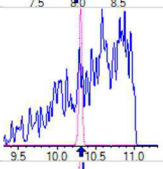
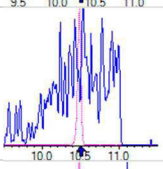
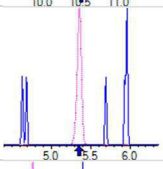
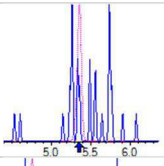
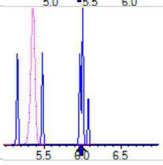
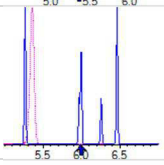
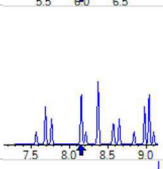
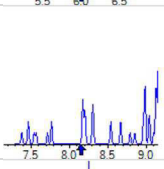
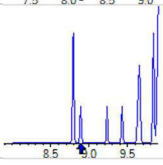
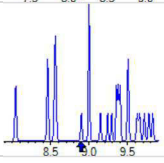
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) N/A (399.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) N/A (499.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (1)
Acquired: 2023/04/14 - 14:29

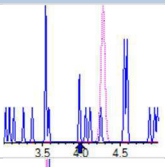
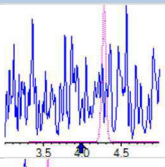
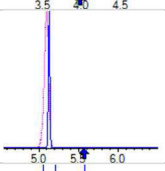
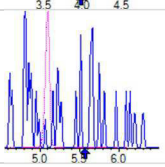
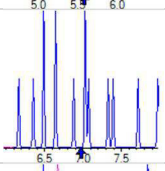
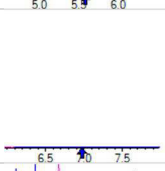
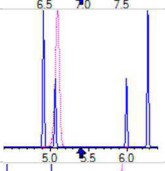
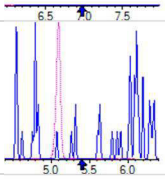
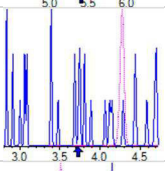
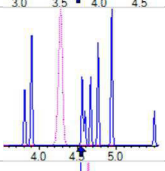
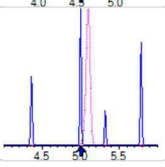
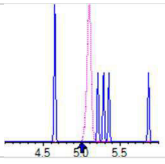
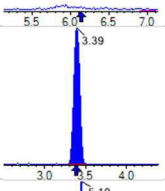
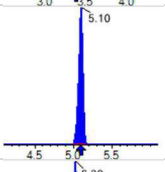
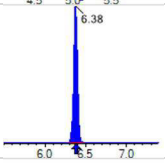
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (1)
Acquired: 2023/04/14 - 14:29

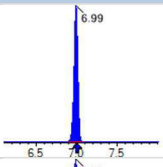
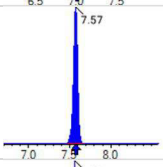
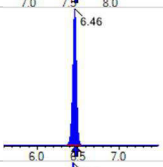
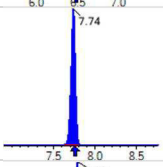
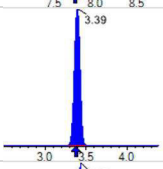
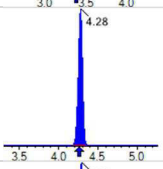
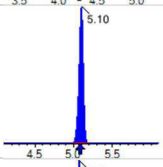
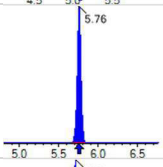
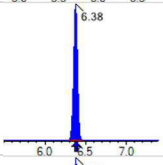
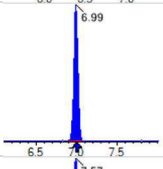
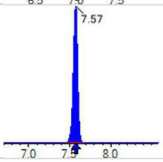
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 150736	(3.39 , N/A) (N/A , 0.02 , N/A)	1008.2	N/A	1.2365 [1.0000]	123.6% { 119.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 217609	(5.10 , N/A) (N/A , 0.01 , N/A)	31582.0	N/A	1.0729 [1.0000]	107.3% { 109.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 348240	(6.38 , N/A) (N/A , -0.01 , N/A)	2088.5	N/A	1.0958 [1.0000]	109.6% { 105.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (1)
Acquired: 2023/04/14 - 14:29

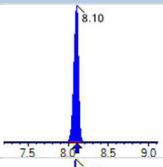
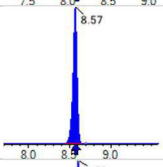
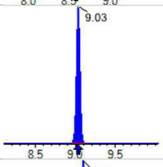
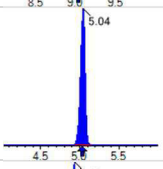
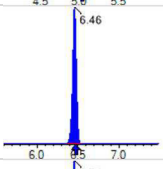
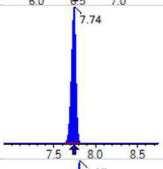
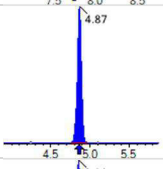
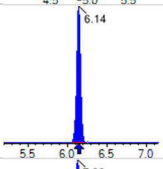
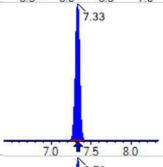
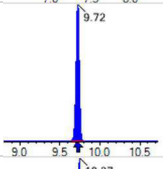
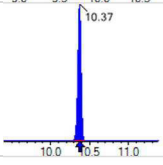
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 333671	(6.99 , N/A) (N/A , 0.00 , N/A)	10645.0	N/A	1.0994 [1.0000]	109.9% { 104.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 334406	(7.57 , N/A) (N/A , -0.01 , N/A)	356694.2	N/A	1.0306 [1.0000]	103.1% { 101.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 551942	(6.46 , N/A) (N/A , -0.01 , N/A)	3507.3	N/A	1.2324 [1.0000]	123.2% { 113.1% }			
13C4_PFOS_IIS	(503.0 / 79.9) 794243	(7.74 , N/A) (N/A , -0.01 , N/A)	2274.2	N/A	1.1679 [1.0000]	116.8% { 111.9% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1283801	(3.39 , N/A) (N/A , 0.02 , N/A)	5810.4	N/A	8.0329 [8.0000]	100.4% { 118.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 954487	(4.28 , N/A) (N/A , 0.01 , N/A)	2891.0	N/A	3.9159 [4.0000]	97.9% { 111.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 616508	(5.10 , N/A) (N/A , 0.01 , N/A)	1802.0	N/A	1.9988 [2.0000]	99.9% { 105.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 616383	(5.76 , N/A) (N/A , 0.00 , N/A)	2252.3	N/A	2.2879 [2.0000]	114.4% { 113.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 698970	(6.38 , N/A) (N/A , 0.00 , N/A)	5108.6	N/A	2.0336 [2.0000]	101.7% { 105.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 341321	(6.99 , N/A) (N/A , 0.00 , N/A)	3230.4	N/A	1.0888 [1.0000]	108.9% { 106.9% }			
13C6_PFDA_EIS	(519.0 / 474.0) 393787	(7.57 , N/A) (N/A , 0.00 , N/A)	5932040.0	N/A	1.0497 [1.0000]	105.0% { 112.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (1)
Acquired: 2023/04/14 - 14:29

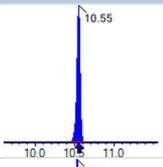
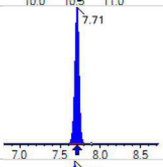
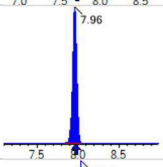
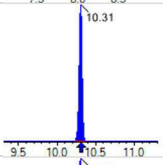
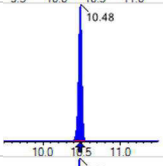
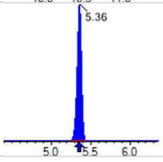
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 390486	(8.10 , N/A) (N/A , 0.00 , N/A)	2537.5	N/A	1.1213 [1.0000]	112.1% { 107.1% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 298009	(8.57 , N/A) (N/A , 0.00 , N/A)	1778.9	N/A	0.9994 [1.0000]	99.9% { 113.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 257429	(9.03 , N/A) (N/A , 0.00 , N/A)	1120.5	N/A	0.9156 [1.0000]	91.6% { 110.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1382929	(5.04 , N/A) (N/A , 0.01 , N/A)	2634.2	N/A	1.5959 [2.0000]	79.8% { 104.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1019002	(6.46 , N/A) (N/A , -0.01 , N/A)	2911.0	N/A	2.0029 [2.0000]	100.1% { 114.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1873365	(7.74 , N/A) (N/A , 0.00 , N/A)	3650.9	N/A	1.9469 [2.0000]	97.3% { 112.8% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 270419	(4.87 , N/A) (N/A , 0.01 , N/A)	914.7	N/A	3.4648 [4.0000]	86.6% { 113.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 385988	(6.14 , N/A) (N/A , 0.00 , N/A)	2211.4	N/A	4.3332 [4.0000]	108.3% { 133.6% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 367052	(7.33 , N/A) (N/A , 0.00 , N/A)	2222.7	N/A	3.1125 [4.0000]	77.8% { 98.7% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2825875	(9.72 , N/A) (N/A , 0.00 , N/A)	3408.4	N/A	1.8091 [2.0000]	90.5% { 115.4% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 668840	(10.37 , N/A) (N/A , 0.00 , N/A)	2467.3	N/A	2.0066 [2.0000]	100.3% { 106.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (1)
Acquired: 2023/04/14 - 14:29

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 599643	(10.55 , N/A) (N/A , 0.00 , N/A)	2786.6	N/A	2.1804 [2.0000]	109.0% { 107.1% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 680360	(7.71 , N/A) (N/A , -0.01 , N/A)	1997.6	N/A	3.2990 [4.0000]	82.5% { 104.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 581148	(7.96 , N/A) (N/A , 0.00 , N/A)	5859.4	N/A	3.4355 [4.0000]	85.9% { 104.8% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2391623	(10.31 , N/A) (N/A , 0.00 , N/A)	2116.8	N/A	21.6120 [20.0000]	108.1% { 110.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3241999	(10.48 , N/A) (N/A , 0.00 , N/A)	1962.4	N/A	22.1658 [20.0000]	110.8% { 110.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1329566	(5.36 , N/A) (N/A , 0.01 , N/A)	2824.9	N/A	7.6410 [8.0000]	95.5% { 109.6% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01502
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

Lab Sample ID	Analyte	Found	Units	RL	C
SC01502-CCB2	PFBA	0.00	ng/mL	0.40	U
	PFPEA	0.00	ng/mL	0.20	U
	PFHXA	0.00	ng/mL	0.10	U
	PFHPA	0.00	ng/mL	0.10	U
	PFOA	0.00	ng/mL	0.10	U
	PFNA	0.00	ng/mL	0.10	U
	PFDA	0.00	ng/mL	0.10	U
	PFUnA	0.00	ng/mL	0.10	U
	PFDOA	0.00	ng/mL	0.10	U
	PFTRDA	0.00	ng/mL	0.10	U
	PFTEDA	0.00	ng/mL	0.10	U
	PFBS	0.00	ng/mL	0.10	U
	PFPES	0.00	ng/mL	0.10	U
	PFHXS	0.00	ng/mL	0.10	U
	PFHPS	0.00	ng/mL	0.10	U
	PFOS	0.00	ng/mL	0.10	U
	PFNS	0.00	ng/mL	0.10	U
	PFDS	0.00	ng/mL	0.10	U
	PFDOS	0.00	ng/mL	0.10	U
	4:2FTS	0.00	ng/mL	0.40	U
	6:2FTS	0.00	ng/mL	0.40	U
	8:2FTS	0.00	ng/mL	0.40	U
	PFOSA	0.00	ng/mL	0.10	U
	NMeFOSA	0.00	ng/mL	0.40	U
	NEtFOSA	0.00	ng/mL	0.40	U
	NMeFOSAA	0.00	ng/mL	0.10	U
	NEtFOSAA	0.00	ng/mL	0.10	U
	NMeFOSE	0.00	ng/mL	0.40	U
	NEtFOSE	0.00	ng/mL	0.40	U
	HFPO-DA	0.00	ng/mL	0.20	U
	ADONA	0.00	ng/mL	0.20	U
	PFEESA	0.00	ng/mL	0.20	U
	PFMPA	0.00	ng/mL	0.20	U

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01502
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

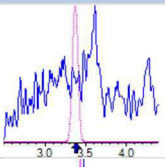
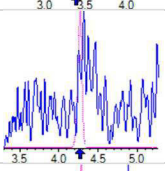
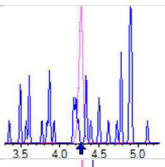
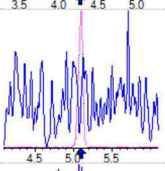
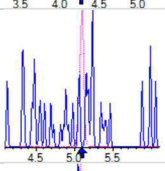
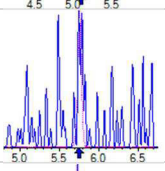
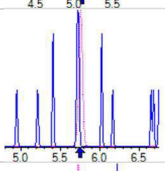
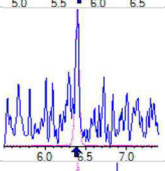
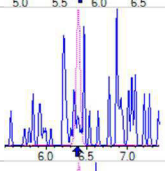
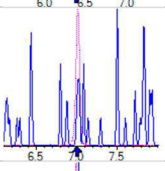
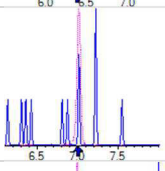
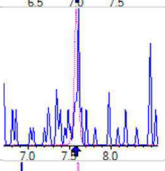
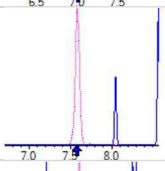
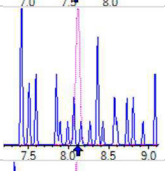
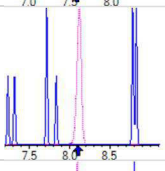
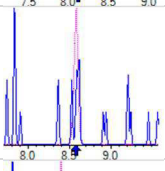
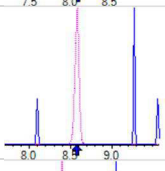
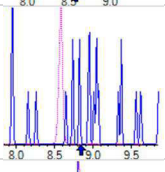
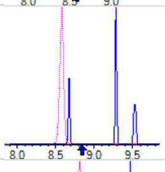
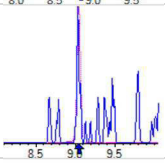
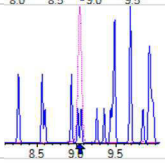
Lab Sample ID	Analyte	Found	Units	RL	C
SC01502-CCB2	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	7.84	ng/mL		
	13C5-PFPEA	4.10	ng/mL		
	13C5-PFHXA	2.14	ng/mL		
	13C4-PFHPA	2.44	ng/mL		
	13C8-PFOA	1.96	ng/mL		
	13C9-PFNA	0.998	ng/mL		
	13C6-PFDA	0.960	ng/mL		
	13C7-PFUnA	1.21	ng/mL		
	13C2-PFDOA	1.11	ng/mL		
	13C2-PFTEDA	0.931	ng/mL		
	13C3-PFBS	1.74	ng/mL		
	13C3-PFHXS	2.11	ng/mL		
	13C8-PFOS	1.91	ng/mL		
	13C2-4:2FTS	3.68	ng/mL		
	13C2-6:2FTS	4.08	ng/mL		
	13C2-8:2FTS	3.85	ng/mL		
	13C8-PFOSA	1.79	ng/mL		
	D3-NMEFOSA	1.99	ng/mL		
	D5-NETFOSA	2.29	ng/mL		
	D3-NMEFOSAA	3.41	ng/mL		
	D5-NETFOSAA	3.60	ng/mL		
	D7-NMEFOSE	21.8	ng/mL		
	D9-NETFOSE	22.2	ng/mL		
	13C3-HFPO-DA	8.57	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (6)
Acquired: 2023/04/14 - 15:34

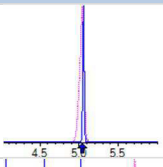
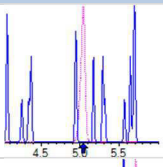
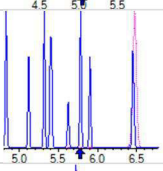
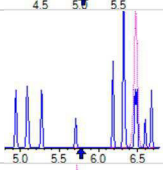
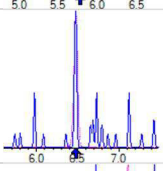
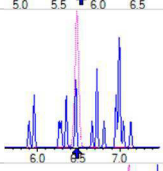
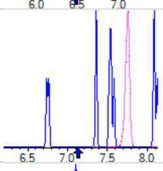
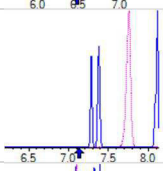
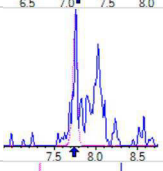
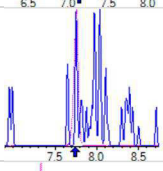
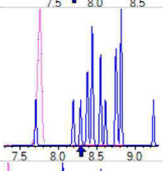
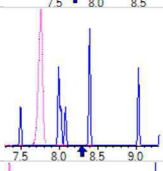
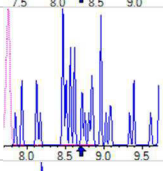
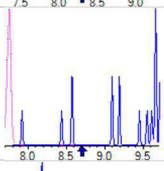
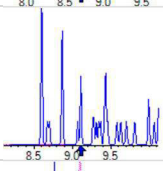
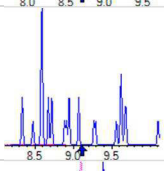
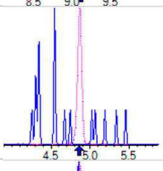
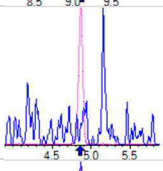
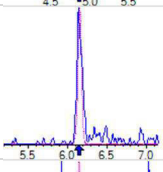
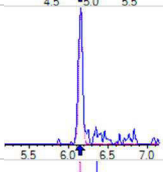
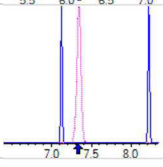
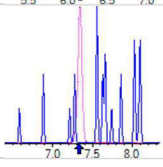
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (6)
Acquired: 2023/04/14 - 15:34

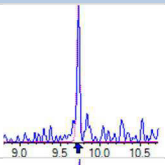
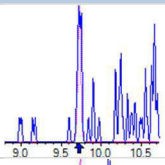
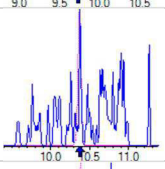
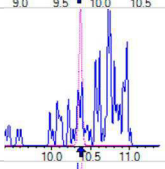
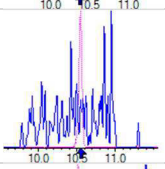
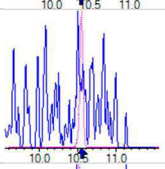
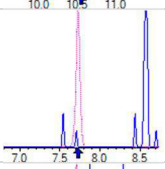
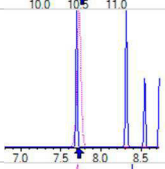
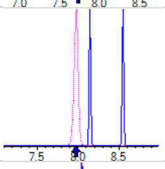
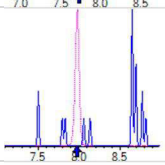
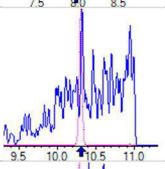
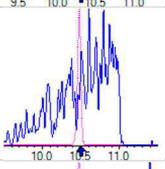
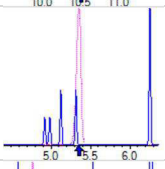
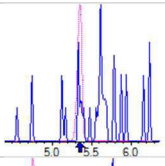
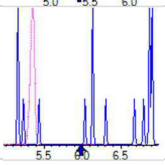
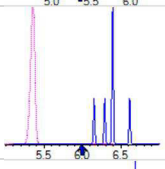
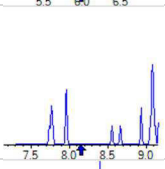
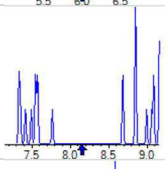
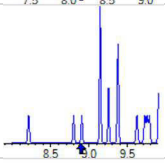
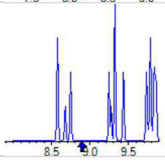
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) N/A (399.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) N/A (499.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (6)
Acquired: 2023/04/14 - 15:34

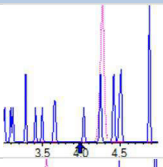
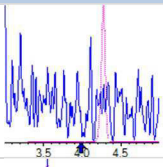
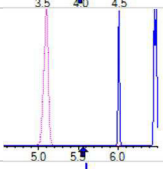
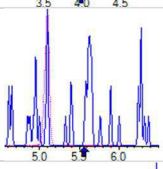
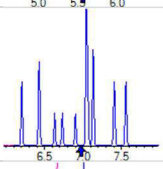
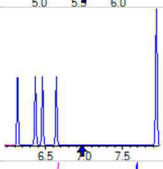
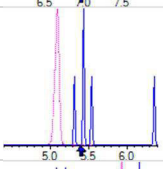
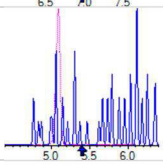
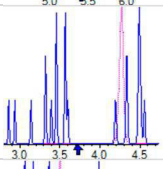
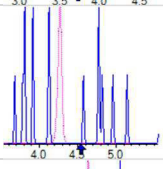
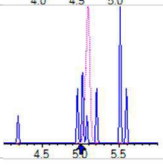
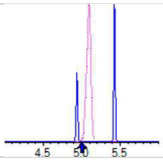
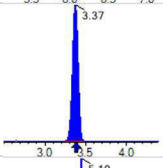
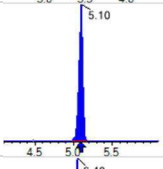
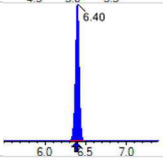
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (6)
Acquired: 2023/04/14 - 15:34

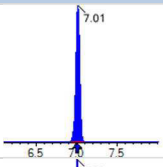
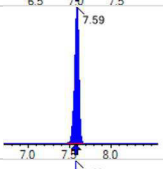
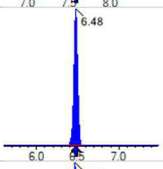
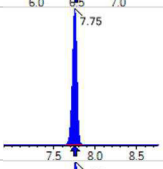
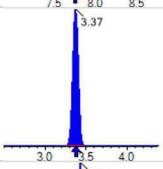
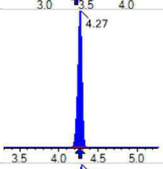
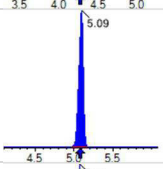
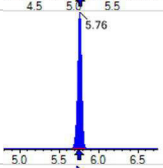
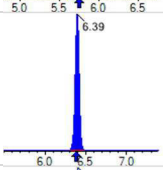
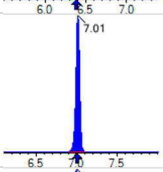
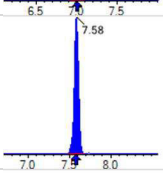
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 151135	(3.37 , N/A) (N/A , 0.00 , N/A)	1255.3	N/A	1.2397 [1.0000]	124.0% { 119.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 208618	(5.10 , N/A) (N/A , 0.01 , N/A)	24385.4	N/A	1.0286 [1.0000]	102.9% { 104.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 375197	(6.40 , N/A) (N/A , 0.01 , N/A)	7115.7	N/A	1.1806 [1.0000]	118.1% { 113.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (6)
Acquired: 2023/04/14 - 15:34

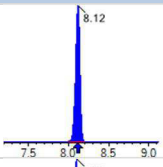
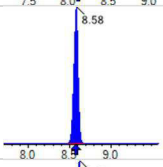
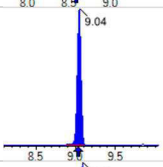
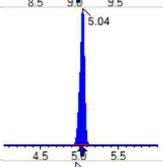
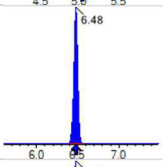
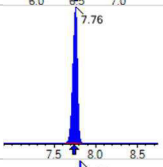
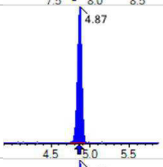
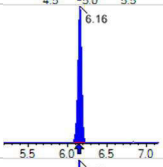
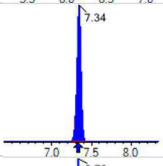
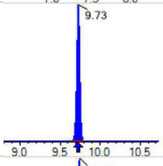
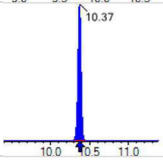
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 376337	(7.01 , N/A) (N/A , 0.02 , N/A)	7110.1	N/A	1.2400 [1.0000]	124.0% { 117.3% }			
13C2_PFDA_IIS	(515.0 / 470.1) 341388	(7.59 , N/A) (N/A , 0.01 , N/A)	188011.5	N/A	1.0521 [1.0000]	105.2% { 103.9% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 521402	(6.48 , N/A) (N/A , 0.01 , N/A)	14705.6	N/A	1.1642 [1.0000]	116.4% { 106.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 808657	(7.75 , N/A) (N/A , 0.01 , N/A)	1940.8	N/A	1.1891 [1.0000]	118.9% { 114.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1255685	(3.37 , N/A) (N/A , 0.00 , N/A)	5259.7	N/A	7.8362 [8.0000]	98.0% { 115.5% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 958230	(4.27 , N/A) (N/A , 0.01 , N/A)	3097.1	N/A	4.1007 [4.0000]	102.5% { 111.4% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 633157	(5.09 , N/A) (N/A , 0.01 , N/A)	3179.3	N/A	2.1412 [2.0000]	107.1% { 107.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 630768	(5.76 , N/A) (N/A , 0.01 , N/A)	2667.2	N/A	2.4422 [2.0000]	122.1% { 115.6% }			
13C8_PFOA_EIS	(421.0 / 376.0) 725020	(6.39 , N/A) (N/A , 0.01 , N/A)	5071.5	N/A	1.9578 [2.0000]	97.9% { 109.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 352842	(7.01 , N/A) (N/A , 0.02 , N/A)	2995.1	N/A	0.9979 [1.0000]	99.8% { 110.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 367510	(7.58 , N/A) (N/A , 0.01 , N/A)	208533.1	N/A	0.9596 [1.0000]	96.0% { 104.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (6)
Acquired: 2023/04/14 - 15:34

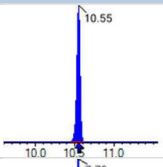
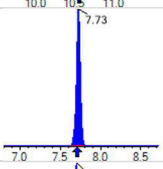
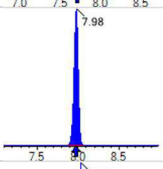
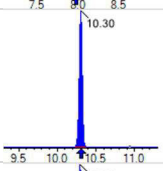
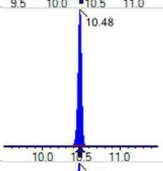
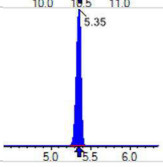
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 428693	(8.12 , N/A) (N/A , 0.02 , N/A)	3008.9	N/A	1.2058 [1.0000]	120.6% { 117.6% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 338129	(8.58 , N/A) (N/A , 0.02 , N/A)	2026.8	N/A	1.1108 [1.0000]	111.1% { 128.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 267329	(9.04 , N/A) (N/A , 0.01 , N/A)	1203.2	N/A	0.9313 [1.0000]	93.1% { 114.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1424615	(5.04 , N/A) (N/A , 0.01 , N/A)	3215.8	N/A	1.7403 [2.0000]	87.0% { 107.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1011696	(6.48 , N/A) (N/A , 0.01 , N/A)	2731.7	N/A	2.1050 [2.0000]	105.3% { 113.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1866713	(7.76 , N/A) (N/A , 0.01 , N/A)	2647.3	N/A	1.9054 [2.0000]	95.3% { 112.4% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 271149	(4.87 , N/A) (N/A , 0.01 , N/A)	1237.0	N/A	3.6777 [4.0000]	91.9% { 113.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 343302	(6.16 , N/A) (N/A , 0.01 , N/A)	1892.0	N/A	4.0797 [4.0000]	102.0% { 118.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 428558	(7.34 , N/A) (N/A , 0.01 , N/A)	2122.6	N/A	3.8469 [4.0000]	96.2% { 115.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2844073	(9.73 , N/A) (N/A , 0.01 , N/A)	3539.7	N/A	1.7883 [2.0000]	89.4% { 116.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 675174	(10.37 , N/A) (N/A , 0.00 , N/A)	2407.6	N/A	1.9894 [2.0000]	99.5% { 107.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (6)
Acquired: 2023/04/14 - 15:34

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 641100	(10.55 , N/A) (N/A , 0.00 , N/A)	2483.5	N/A	2.2895 [2.0000]	114.5% { 114.5% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 717049	(7.73 , N/A) (N/A , 0.01 , N/A)	1794.6	N/A	3.4149 [4.0000]	85.4% { 110.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 620030	(7.98 , N/A) (N/A , 0.01 , N/A)	13756.0	N/A	3.6000 [4.0000]	90.0% { 111.9% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2459881	(10.30 , N/A) (N/A , 0.00 , N/A)	1723.2	N/A	21.8326 [20.0000]	109.2% { 113.2% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3298830	(10.48 , N/A) (N/A , 0.00 , N/A)	1536.3	N/A	22.1523 [20.0000]	110.8% { 112.6% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1429392	(5.35 , N/A) (N/A , 0.00 , N/A)	2515.7	N/A	8.5688 [8.0000]	107.1% { 117.9% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01502
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

Lab Sample ID	Analyte	Found	Units	RL	C
SC01502-CCB3	PFBA	0.00	ng/mL	0.40	U
	PFPEA	0.00	ng/mL	0.20	U
	PFHXA	0.00	ng/mL	0.10	U
	PFHPA	0.00	ng/mL	0.10	U
	PFOA	0.00	ng/mL	0.10	U
	PFNA	0.00	ng/mL	0.10	U
	PFDA	0.00	ng/mL	0.10	U
	PFUnA	0.00	ng/mL	0.10	U
	PFDOA	0.00	ng/mL	0.10	U
	PFTRDA	0.00	ng/mL	0.10	U
	PFTEDA	0.00	ng/mL	0.10	U
	PFBS	0.00	ng/mL	0.10	U
	PFPES	0.00	ng/mL	0.10	U
	PFHXS	0.00	ng/mL	0.10	U
	PFHPS	0.00	ng/mL	0.10	U
	PFOS	0.00	ng/mL	0.10	U
	PFNS	0.00	ng/mL	0.10	U
	PFDS	0.00	ng/mL	0.10	U
	PFDOS	0.00	ng/mL	0.10	U
	4:2FTS	0.00	ng/mL	0.40	U
	6:2FTS	0.00	ng/mL	0.40	U
	8:2FTS	0.00	ng/mL	0.40	U
	PFOSA	0.00	ng/mL	0.10	U
	NMeFOSA	0.00	ng/mL	0.40	U
	NEtFOSA	0.00	ng/mL	0.40	U
	NMeFOSAA	0.00	ng/mL	0.10	U
	NEtFOSAA	0.00	ng/mL	0.10	U
	NMeFOSE	0.00	ng/mL	0.40	U
	NEtFOSE	0.00	ng/mL	0.40	U
	HFPO-DA	0.00	ng/mL	0.20	U
	ADONA	0.00	ng/mL	0.20	U
	PFEESA	0.00	ng/mL	0.20	U
	PFMPA	0.00	ng/mL	0.20	U

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01502
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

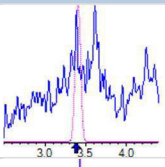
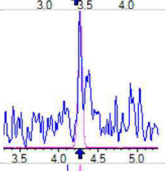
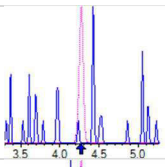
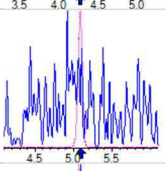
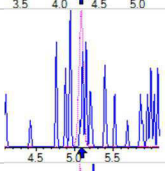
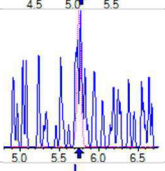
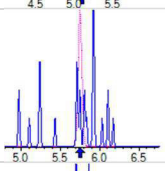
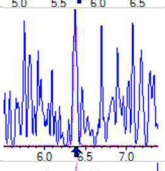
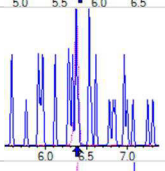
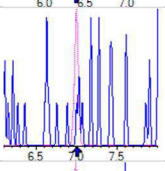
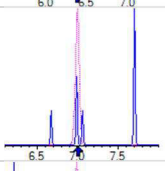
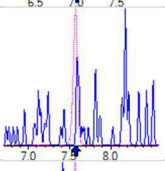
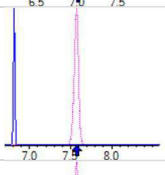
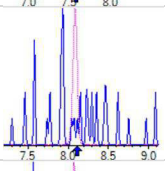
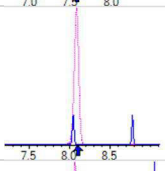
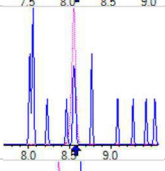
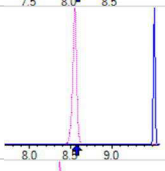
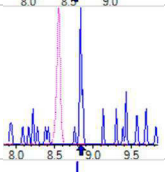
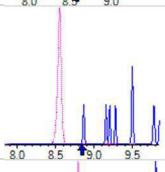
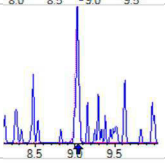
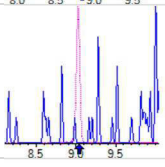
Lab Sample ID	Analyte	Found	Units	RL	C
SC01502-CCB3	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.11	ng/mL		
	13C5-PFPEA	3.51	ng/mL		
	13C5-PFHXA	1.95	ng/mL		
	13C4-PFHPA	2.06	ng/mL		
	13C8-PFOA	1.88	ng/mL		
	13C9-PFNA	1.12	ng/mL		
	13C6-PFDA	0.975	ng/mL		
	13C7-PFUnA	1.13	ng/mL		
	13C2-PFDOA	1.07	ng/mL		
	13C2-PFTEDA	0.903	ng/mL		
	13C3-PFBS	1.75	ng/mL		
	13C3-PFHXS	1.84	ng/mL		
	13C8-PFOS	1.96	ng/mL		
	13C2-4:2FTS	3.91	ng/mL		
	13C2-6:2FTS	4.07	ng/mL		
	13C2-8:2FTS	3.57	ng/mL		
	13C8-PFOSA	1.79	ng/mL		
	D3-NMEFOSA	2.12	ng/mL		
	D5-NETFOSA	2.47	ng/mL		
	D3-NMEFOSAA	3.55	ng/mL		
	D5-NETFOSAA	3.61	ng/mL		
	D7-NMEFOSE	22.6	ng/mL		
	D9-NETFOSE	23.6	ng/mL		
	13C3-HFPO-DA	7.07	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (33)
Acquired: 2023/04/14 - 21:22

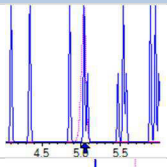
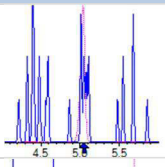
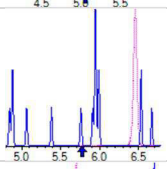
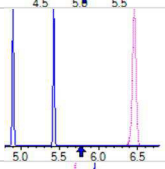
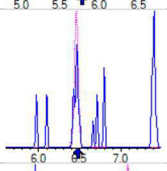
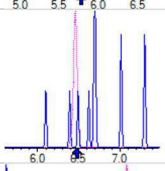
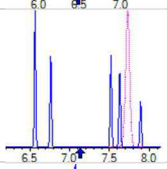
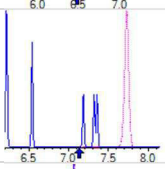
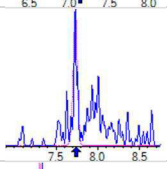
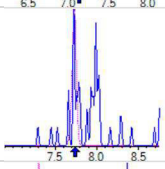
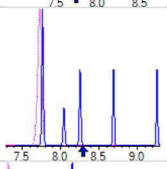
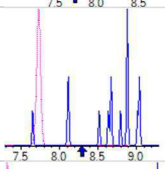
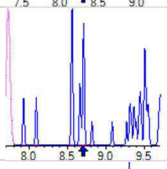
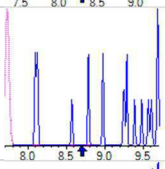
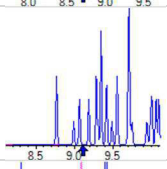
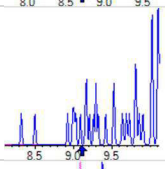
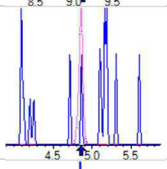
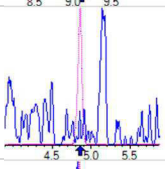
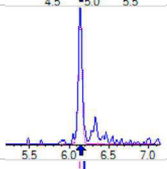
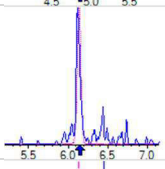
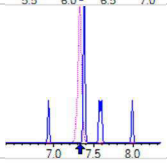
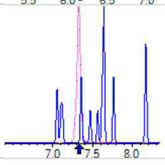
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (33)
Acquired: 2023/04/14 - 21:22

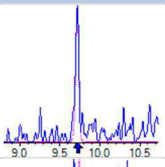
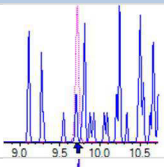
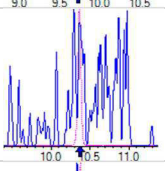
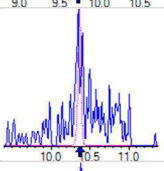
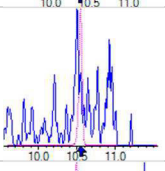
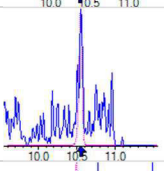
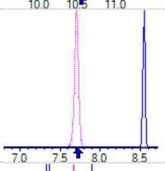
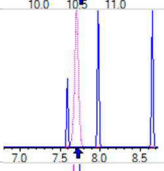
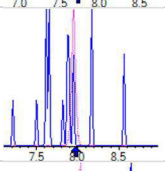
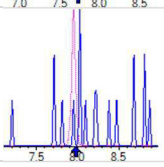
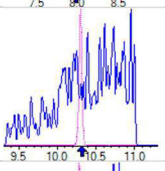
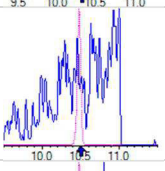
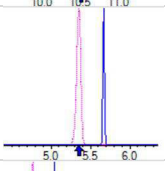
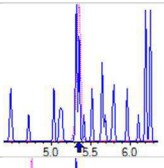
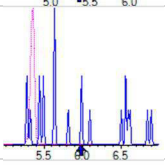
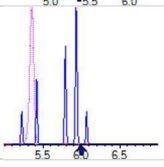
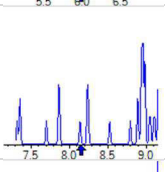
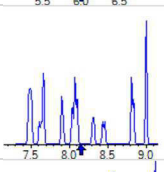
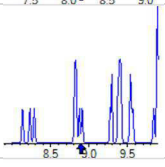
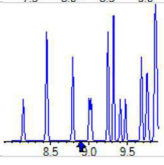
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) N/A (399.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) N/A (499.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (33)
Acquired: 2023/04/14 - 21:22

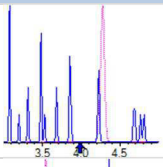
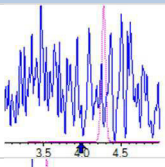
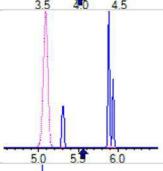
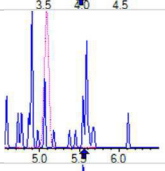
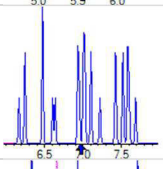
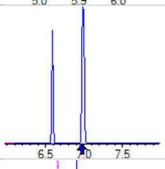
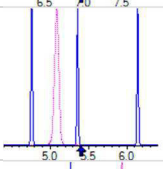
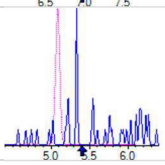
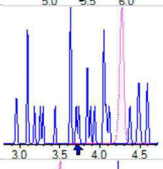
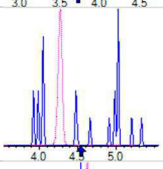
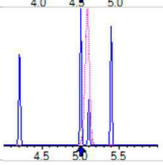
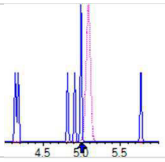
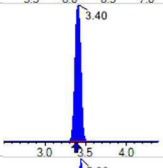
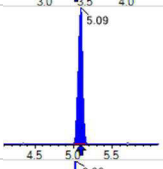
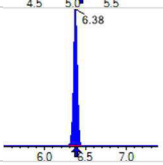
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (33)
Acquired: 2023/04/14 - 21:22

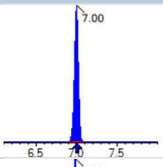
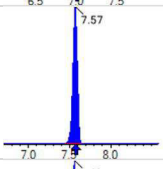
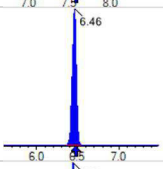
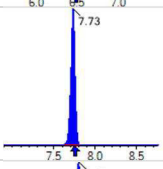
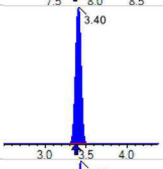
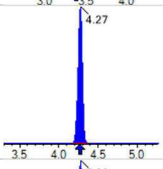
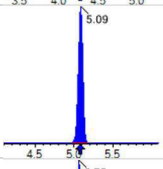
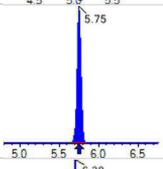
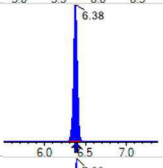
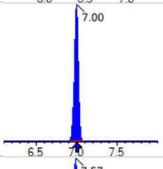
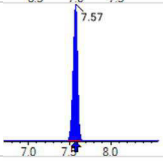
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 145745	(3.40 , N/A) (N/A , 0.03 , N/A)	1210.8	N/A	1.1955 [1.0000]	119.6% { 115.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 228070	(5.09 , N/A) (N/A , 0.00 , N/A)	1547.5	N/A	1.1245 [1.0000]	112.4% { 114.2% }			
13C4_PFOA_IIS	(417.0 / 372.0) 350745	(6.38 , N/A) (N/A , -0.01 , N/A)	4422.5	N/A	1.1037 [1.0000]	110.4% { 105.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (33)
Acquired: 2023/04/14 - 21:22

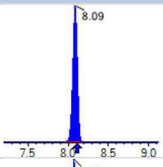
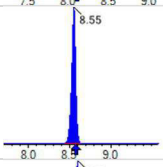
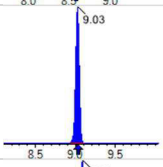
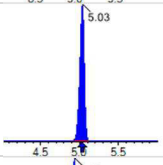
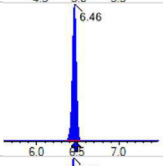
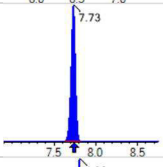
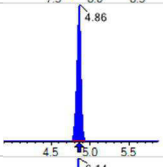
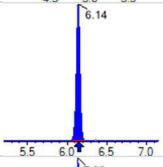
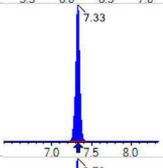
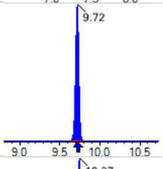
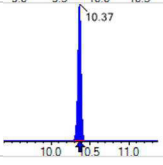
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 317805	(7.00 , N/A) (N/A , 0.00 , N/A)	5769014.6	N/A	1.0471 [1.0000]	104.7% { 99.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 334090	(7.57 , N/A) (N/A , -0.01 , N/A)	8451.4	N/A	1.0296 [1.0000]	103.0% { 101.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 533426	(6.46 , N/A) (N/A , -0.01 , N/A)	4107.6	N/A	1.1911 [1.0000]	119.1% { 109.3% }			
13C4_PFOS_IIS	(503.0 / 79.9) 769732	(7.73 , N/A) (N/A , -0.01 , N/A)	1973.4	N/A	1.1318 [1.0000]	113.2% { 108.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1253270	(3.40 , N/A) (N/A , 0.04 , N/A)	4509.8	N/A	8.1104 [8.0000]	101.4% { 115.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 896864	(4.27 , N/A) (N/A , 0.01 , N/A)	3131.0	N/A	3.5107 [4.0000]	87.8% { 104.3% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 628898	(5.09 , N/A) (N/A , 0.00 , N/A)	2737.2	N/A	1.9454 [2.0000]	97.3% { 107.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 582113	(5.75 , N/A) (N/A , 0.00 , N/A)	2452.2	N/A	2.0616 [2.0000]	103.1% { 106.7% }			
13C8_PFOA_EIS	(421.0 / 376.0) 652309	(6.38 , N/A) (N/A , -0.01 , N/A)	1079.0	N/A	1.8843 [2.0000]	94.2% { 98.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 333597	(7.00 , N/A) (N/A , 0.00 , N/A)	3032.3	N/A	1.1173 [1.0000]	111.7% { 104.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 365379	(7.57 , N/A) (N/A , 0.00 , N/A)	16369.2	N/A	0.9749 [1.0000]	97.5% { 104.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (33)
Acquired: 2023/04/14 - 21:22

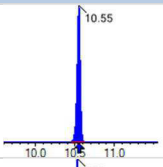
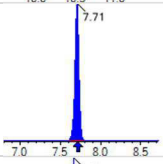
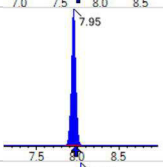
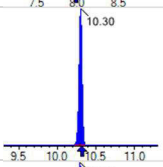
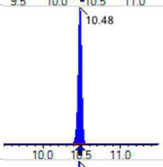
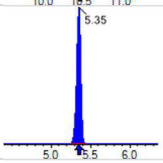
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 394203	(8.09 , N/A) (N/A , -0.01 , N/A)	3555.6	N/A	1.1331 [1.0000]	113.3% { 108.1% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 317401	(8.55 , N/A) (N/A , -0.01 , N/A)	1139.0	N/A	1.0655 [1.0000]	106.5% { 120.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 253759	(9.03 , N/A) (N/A , -0.01 , N/A)	888.3	N/A	0.9034 [1.0000]	90.3% { 108.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1464534	(5.03 , N/A) (N/A , 0.00 , N/A)	2622.3	N/A	1.7488 [2.0000]	87.4% { 110.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 903655	(6.46 , N/A) (N/A , -0.01 , N/A)	1334.8	N/A	1.8379 [2.0000]	91.9% { 101.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1826679	(7.73 , N/A) (N/A , -0.01 , N/A)	2881.4	N/A	1.9588 [2.0000]	97.9% { 110.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 295050	(4.86 , N/A) (N/A , 0.00 , N/A)	1375.2	N/A	3.9117 [4.0000]	97.8% { 123.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 350692	(6.14 , N/A) (N/A , -0.01 , N/A)	2175.5	N/A	4.0736 [4.0000]	101.8% { 121.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 406320	(7.33 , N/A) (N/A , 0.00 , N/A)	2136.3	N/A	3.5651 [4.0000]	89.1% { 109.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2711956	(9.72 , N/A) (N/A , 0.00 , N/A)	3099.9	N/A	1.7914 [2.0000]	89.6% { 110.8% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 684107	(10.37 , N/A) (N/A , 0.00 , N/A)	2764.4	N/A	2.1177 [2.0000]	105.9% { 109.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (33)
Acquired: 2023/04/14 - 21:22

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 658218	(10.55 , N/A) (N/A , 0.00 , N/A)	3088.9	N/A	2.4696 [2.0000]	123.5% { 117.5% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 709951	(7.71 , N/A) (N/A , -0.01 , N/A)	2393.2	N/A	3.5521 [4.0000]	88.8% { 109.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 592340	(7.95 , N/A) (N/A , -0.02 , N/A)	15352.8	N/A	3.6132 [4.0000]	90.3% { 106.9% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2421685	(10.30 , N/A) (N/A , 0.00 , N/A)	2304.7	N/A	22.5805 [20.0000]	112.9% { 111.4% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3341174	(10.48 , N/A) (N/A , 0.00 , N/A)	1875.1	N/A	23.5713 [20.0000]	117.9% { 114.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1289483	(5.35 , N/A) (N/A , 0.00 , N/A)	3444.4	N/A	7.0708 [8.0000]	88.4% { 106.3% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01502
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

Lab Sample ID	Analyte	Found	Units	RL	C
SC01502-CCB4	PFBA	0.00	ng/mL	0.40	U
	PFPEA	0.00	ng/mL	0.20	U
	PFHXA	0.00	ng/mL	0.10	U
	PFHPA	0.00	ng/mL	0.10	U
	PFOA	0.00	ng/mL	0.10	U
	PFNA	0.00	ng/mL	0.10	U
	PFDA	0.00	ng/mL	0.10	U
	PFUnA	0.00	ng/mL	0.10	U
	PFDOA	0.00	ng/mL	0.10	U
	PFTRDA	0.00	ng/mL	0.10	U
	PFTEDA	0.00	ng/mL	0.10	U
	PFBS	0.00	ng/mL	0.10	U
	PFPES	0.00	ng/mL	0.10	U
	PFHXS	0.00	ng/mL	0.10	U
	PFHPS	0.00	ng/mL	0.10	U
	PFOS	0.00	ng/mL	0.10	U
	PFNS	0.00	ng/mL	0.10	U
	PFDS	0.00	ng/mL	0.10	U
	PFDOS	0.00	ng/mL	0.10	U
	4:2FTS	0.00	ng/mL	0.40	U
	6:2FTS	0.00	ng/mL	0.40	U
	8:2FTS	0.00	ng/mL	0.40	U
	PFOSA	0.00	ng/mL	0.10	U
	NMeFOSA	0.00	ng/mL	0.40	U
	NEtFOSA	0.00	ng/mL	0.40	U
	NMeFOSAA	0.00	ng/mL	0.10	U
	NEtFOSAA	0.00	ng/mL	0.10	U
	NMeFOSE	0.00	ng/mL	0.40	U
	NEtFOSE	0.00	ng/mL	0.40	U
	HFPO-DA	0.00	ng/mL	0.20	U
	ADONA	0.00	ng/mL	0.20	U
	PFEESA	0.00	ng/mL	0.20	U
	PFMPA	0.00	ng/mL	0.20	U

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01502
Calibration: 2315014

SDG:
Project: Red Hill AFFF Assessment Sam
Instrument: Saphira

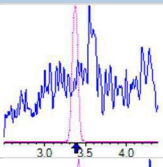
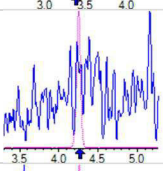
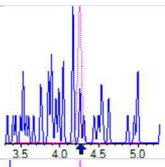
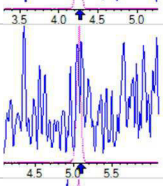
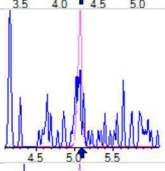
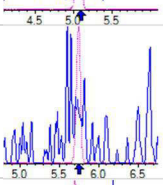
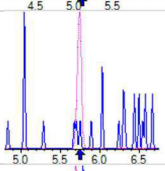
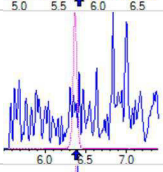
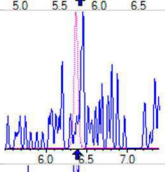
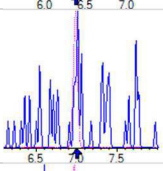
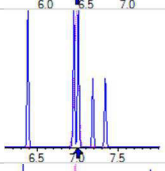
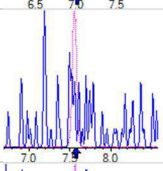
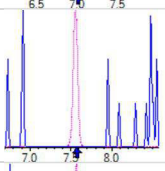
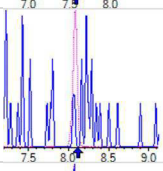
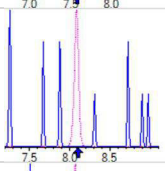
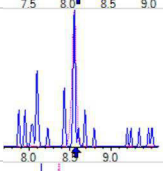
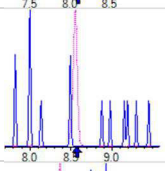
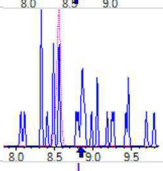
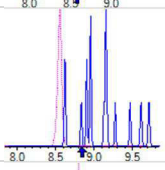
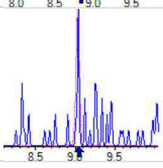
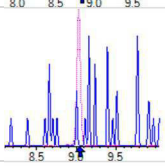
Lab Sample ID	Analyte	Found	Units	RL	C
SC01502-CCB4	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.94	ng/mL		
	13C5-PFPEA	9.58	ng/mL		
	13C5-PFHXA	4.16	ng/mL		
	13C4-PFHPA	5.79	ng/mL		
	13C8-PFOA	2.18	ng/mL		
	13C9-PFNA	1.06	ng/mL		
	13C6-PFDA	1.01	ng/mL		
	13C7-PFUnA	1.17	ng/mL		
	13C2-PFDOA	1.17	ng/mL		
	13C2-PFTEDA	1.03	ng/mL		
	13C3-PFBS	1.62	ng/mL		
	13C3-PFHXS	2.08	ng/mL		
	13C8-PFOS	1.98	ng/mL		
	13C2-4:2FTS	4.59	ng/mL		
	13C2-6:2FTS	4.94	ng/mL		
	13C2-8:2FTS	4.79	ng/mL		
	13C8-PFOSA	1.61	ng/mL		
	D3-NMEFOSA	1.40	ng/mL		
	D5-NETFOSA	1.79	ng/mL		
	D3-NMEFOSAA	4.29	ng/mL		
	D5-NETFOSAA	4.22	ng/mL		
	D7-NMEFOSE	17.5	ng/mL		
	D9-NETFOSE	16.4	ng/mL		
	13C3-HFPO-DA	16.8	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (53)
Acquired: 2023/04/15 - 01:39

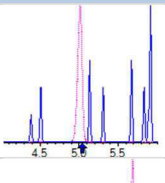
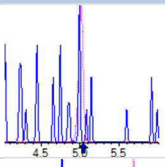
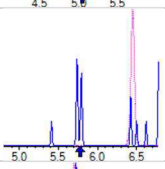
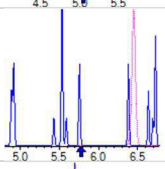
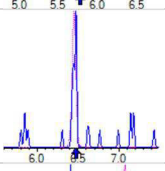
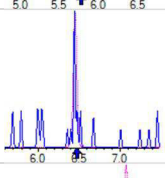
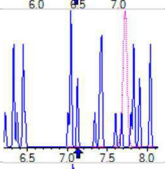
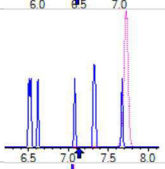
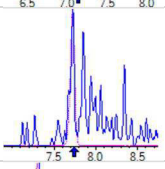
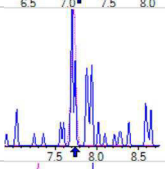
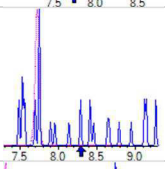
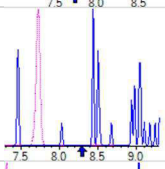
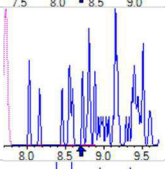
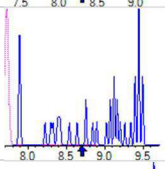
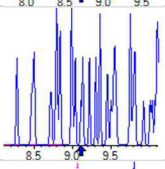
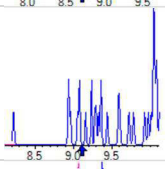
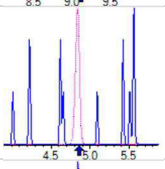
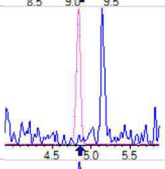
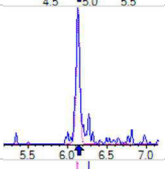
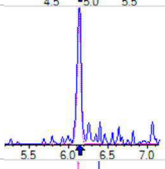
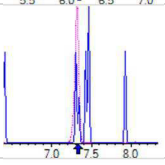
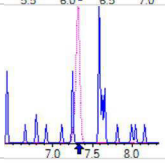
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (53)
Acquired: 2023/04/15 - 01:39

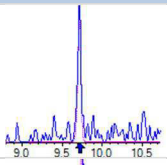
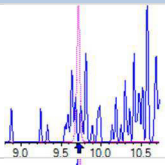
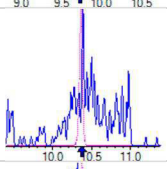
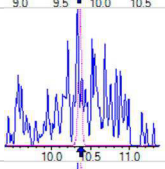
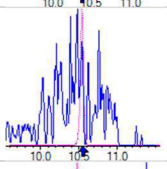
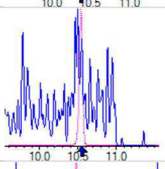
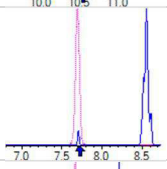
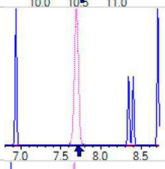
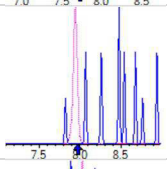
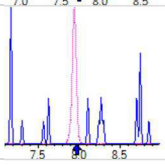
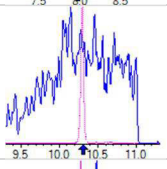
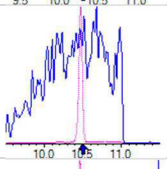
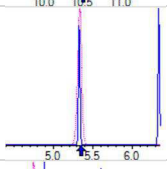
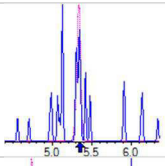
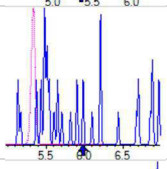
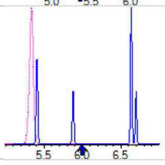
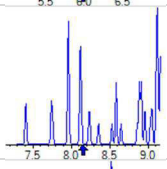
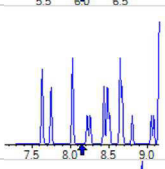
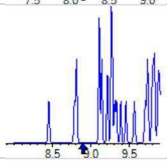
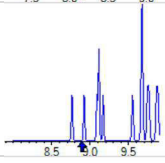
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) N/A (399.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) N/A (499.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (53)
Acquired: 2023/04/15 - 01:39

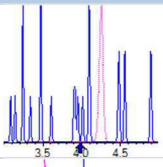
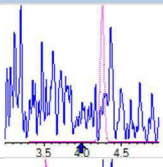
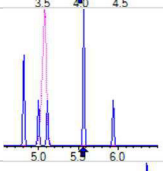
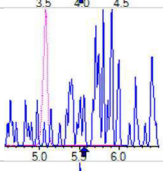
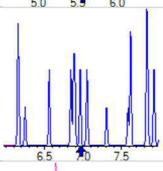
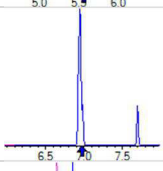
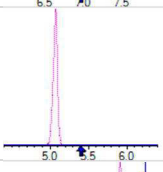
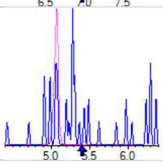
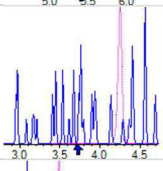
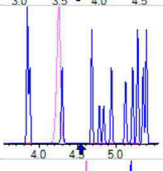
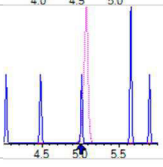
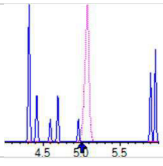
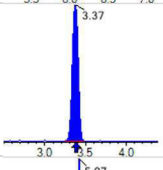
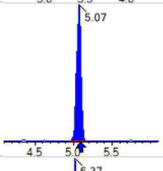
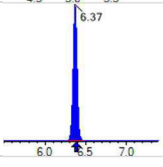
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (53)
Acquired: 2023/04/15 - 01:39

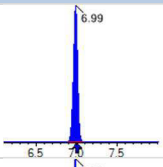
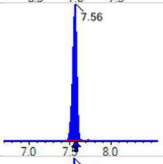
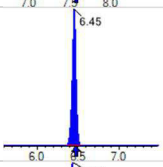
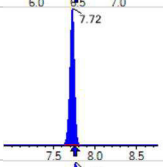
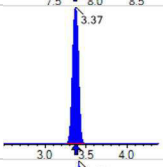
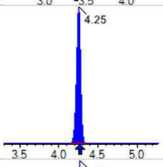
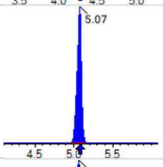
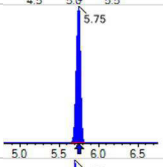
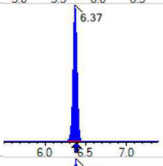
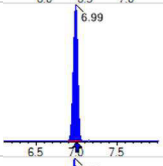
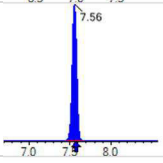
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 129152	(3.37 , N/A) (N/A , 0.00 , N/A)	1096.8	N/A	1.0594 [1.0000]	105.9% { 102.4% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 91753	(5.07 , N/A) (N/A , -0.02 , N/A)	6161.1	N/A	0.4524 [1.0000]	45.2% { 45.9% }			IS1,
13C4_PFOA_IIS	(417.0 / 372.0) 355692	(6.37 , N/A) (N/A , -0.01 , N/A)	45741.1	N/A	1.1193 [1.0000]	111.9% { 107.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (53)
Acquired: 2023/04/15 - 01:39

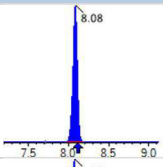
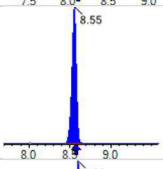
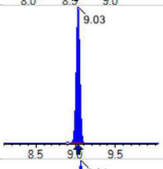
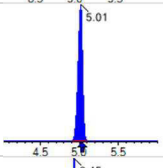
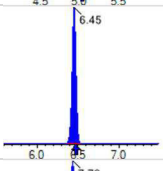
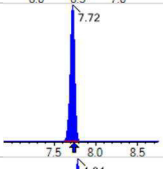
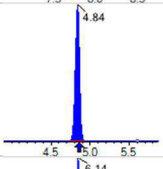
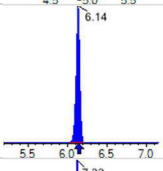
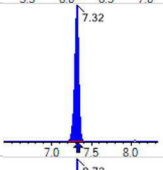
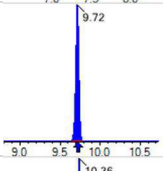
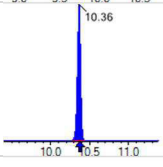
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 351689	(6.99 , N/A) (N/A , -0.01 , N/A)	8396.0	N/A	1.1588 [1.0000]	115.9% { 109.6% }			
13C2_PFDA_IIS	(515.0 / 470.1) 372731	(7.56 , N/A) (N/A , -0.02 , N/A)	1745.5	N/A	1.1487 [1.0000]	114.9% { 113.4% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 535337	(6.45 , N/A) (N/A , -0.01 , N/A)	1984.8	N/A	1.1953 [1.0000]	119.5% { 109.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 867760	(7.72 , N/A) (N/A , -0.02 , N/A)	1893.6	N/A	1.2760 [1.0000]	127.6% { 122.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1224414	(3.37 , N/A) (N/A , 0.00 , N/A)	4428.1	N/A	8.9416 [8.0000]	111.8% { 112.6% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 985082	(4.25 , N/A) (N/A , -0.01 , N/A)	2806.5	N/A	9.5850 [4.0000]	239.6% { 114.5% }			S2,
13C5_PFHxA_EIS	(318.0 / 273.0) 540786	(5.07 , N/A) (N/A , -0.01 , N/A)	1869.4	N/A	4.1582 [2.0000]	207.9% { 92.2% }			S2,
13C4_PFHpA_EIS	(367.0 / 322.0) 657795	(5.75 , N/A) (N/A , -0.01 , N/A)	15492.9	N/A	5.7907 [2.0000]	289.5% { 120.5% }			S2,
13C8_PFOA_EIS	(421.0 / 376.0) 766664	(6.37 , N/A) (N/A , -0.01 , N/A)	1804.3	N/A	2.1838 [2.0000]	109.2% { 116.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 350618	(6.99 , N/A) (N/A , -0.01 , N/A)	11948.3	N/A	1.0611 [1.0000]	106.1% { 109.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 420507	(7.56 , N/A) (N/A , -0.02 , N/A)	4018.0	N/A	1.0056 [1.0000]	100.6% { 119.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (53)
Acquired: 2023/04/15 - 01:39

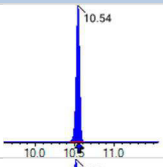
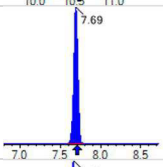
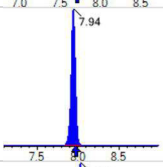
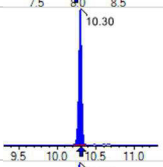
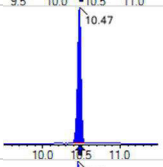
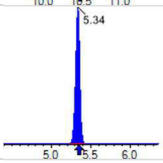
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 453838	(8.08 , N/A) (N/A , -0.02 , N/A)	19976.9	N/A	1.1692 [1.0000]	116.9% { 124.5% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 387525	(8.55 , N/A) (N/A , -0.01 , N/A)	1766.3	N/A	1.1660 [1.0000]	116.6% { 147.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 322246	(9.03 , N/A) (N/A , 0.00 , N/A)	1611.3	N/A	1.0283 [1.0000]	102.8% { 138.3% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1357576	(5.01 , N/A) (N/A , -0.02 , N/A)	3106.4	N/A	1.6153 [2.0000]	80.8% { 102.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1028190	(6.45 , N/A) (N/A , -0.01 , N/A)	2686.2	N/A	2.0837 [2.0000]	104.2% { 115.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 2077384	(7.72 , N/A) (N/A , -0.02 , N/A)	3852.2	N/A	1.9760 [2.0000]	98.8% { 125.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 347785	(4.84 , N/A) (N/A , -0.02 , N/A)	1116.8	N/A	4.5943 [4.0000]	114.9% { 145.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 426456	(6.14 , N/A) (N/A , -0.01 , N/A)	2342.7	N/A	4.9360 [4.0000]	123.4% { 147.6% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 547509	(7.32 , N/A) (N/A , -0.01 , N/A)	1539.7	N/A	4.7867 [4.0000]	119.7% { 147.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2754441	(9.72 , N/A) (N/A , 0.00 , N/A)	4098.0	N/A	1.6139 [2.0000]	80.7% { 112.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 508655	(10.36 , N/A) (N/A , 0.00 , N/A)	1973.6	N/A	1.3967 [2.0000]	69.8% { 81.1% }			S1,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (53)
Acquired: 2023/04/15 - 01:39

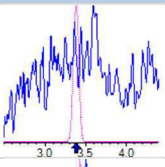
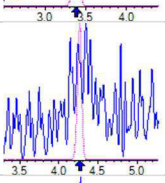
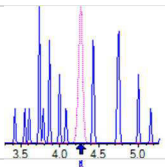
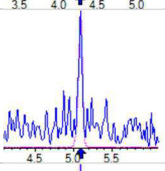
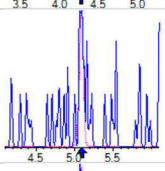
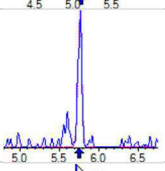
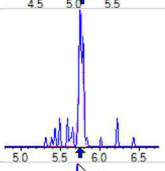
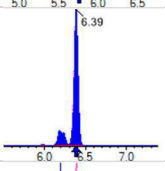
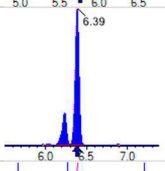
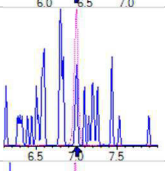
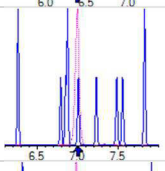
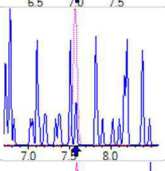
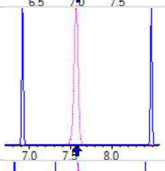
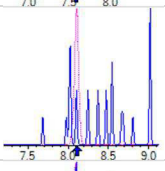
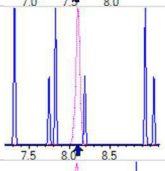
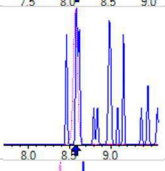
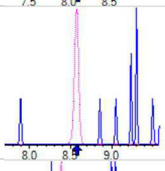
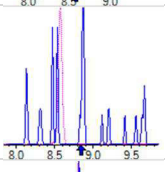
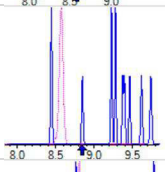
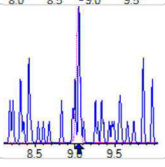
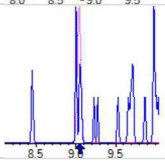
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 538681	(10.54 , N/A) (N/A , -0.01 , N/A)	2400.5	N/A	1.7928 [2.0000]	89.6% { 96.2% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 967324	(7.69 , N/A) (N/A , -0.02 , N/A)	2788.1	N/A	4.2930 [4.0000]	107.3% { 148.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 779931	(7.94 , N/A) (N/A , -0.02 , N/A)	5970.0	N/A	4.2200 [4.0000]	105.5% { 140.7% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2117042	(10.30 , N/A) (N/A , -0.01 , N/A)	1203.5	N/A	17.5100 [20.0000]	87.5% { 97.4% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2626442	(10.47 , N/A) (N/A , -0.01 , N/A)	883.6	N/A	16.4358 [20.0000]	82.2% { 89.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1236166	(5.34 , N/A) (N/A , -0.01 , N/A)	2334.9	N/A	16.8491 [8.0000]	210.6% { 101.9% }			S2,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (4)
Acquired: 2023/04/14 - 15:08

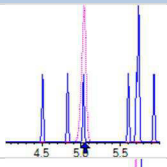
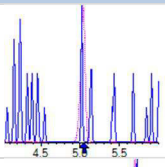
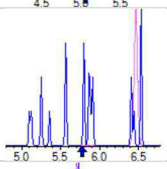
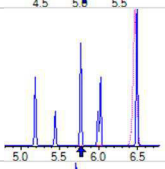
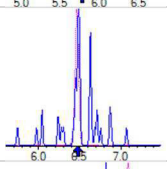
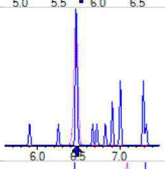
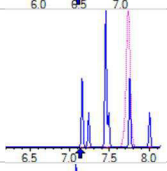
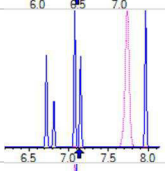
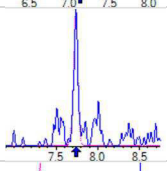
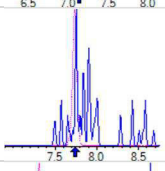
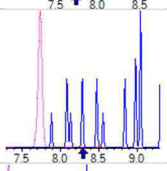
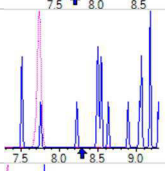
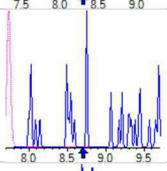
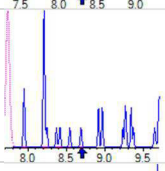
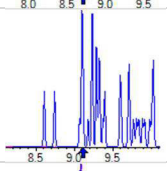
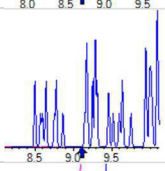
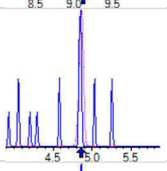
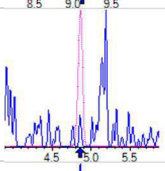
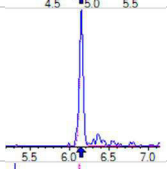
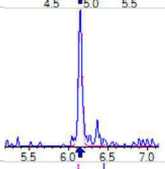
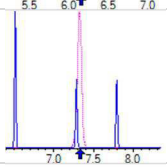
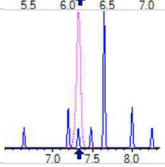
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) 3000770 (413.0 / 169.0) 1037247	(6.39 , 1.00) (0.00 , N/A , -0.1)	2342.2 4230.9	0.3457 110.4 110.4	8.5921	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (4)
Acquired: 2023/04/14 - 15:08

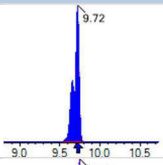
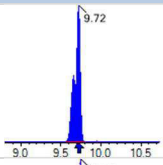
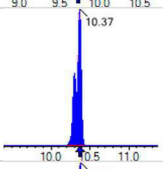
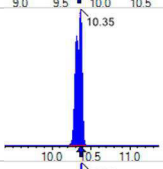
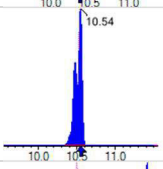
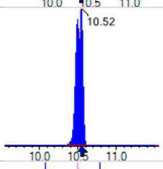
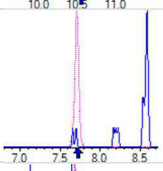
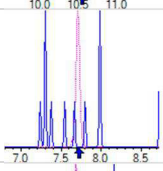
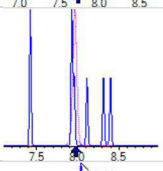
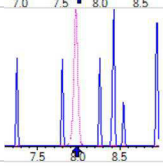
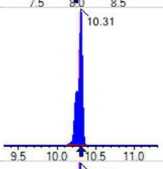
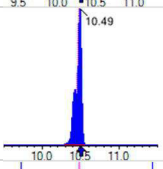
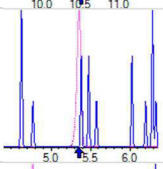
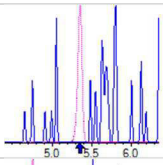
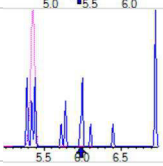
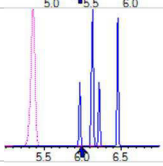
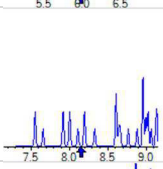
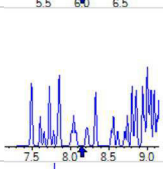
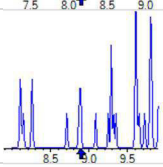
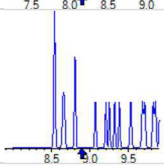
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) N/A (399.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) N/A (499.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (4)
Acquired: 2023/04/14 - 15:08

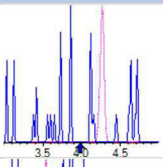
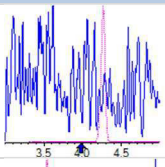
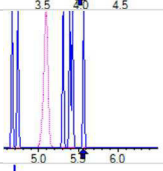
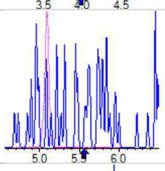
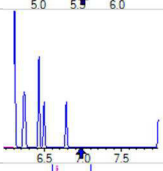
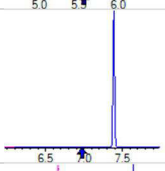
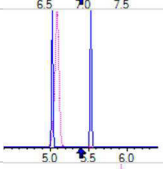
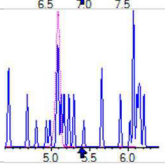
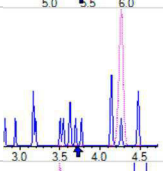
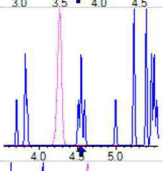
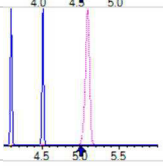
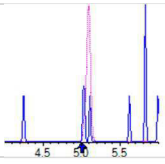
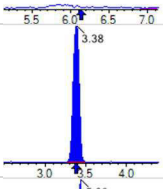
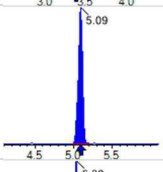
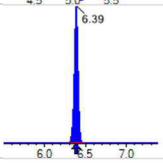
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 11218136 (498.0 / 478.0) 278838	(9.72 , 1.00) (0.00 , N/A , 0.0)	3710.2 1009.3	0.0249 100.4 112.0	10.2358	N/A			
NMeFOSA	(512.0 / 219.0) 2756812 (512.0 / 169.0) 2322923	(10.37 , 1.00) (0.00 , N/A , 1.2)	5548.4 4765.8	0.8426 97.1 99.8	9.5216	N/A			
NEtFOSA	(526.0 / 219.0) 3185816 (526.0 / 169.0) 3996285	(10.54 , 1.00) (-0.01 , N/A , 0.9)	5629.7 5149.9	1.2544 100.3 100.7	9.0562	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) 1271352	(10.31 , 1.00) (0.01 , N/A , 0.0)	1494.3	N/A 0.0 0.0	9.5872	N/A			
NEtFOSE	(630.0 / 59.0) 1625076	(10.49 , 1.00) (0.01 , N/A , 0.0)	1341.6	N/A 0.0 0.0	9.7351	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (4)
Acquired: 2023/04/14 - 15:08

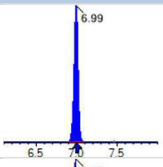
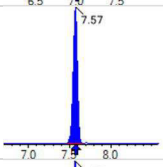
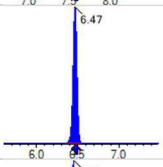
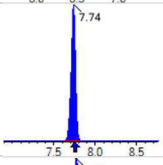
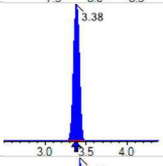
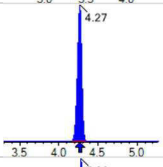
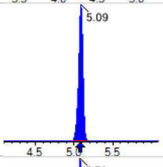
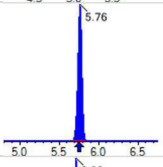
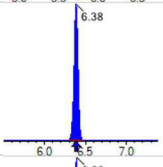
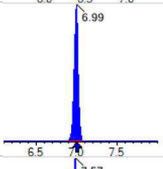
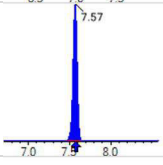
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 155588	(3.38 , N/A) (N/A , 0.01 , N/A)	1153.8	N/A	1.2763 [1.0000]	127.6% { 123.3% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 234924	(5.09 , N/A) (N/A , 0.01 , N/A)	1915.8	N/A	1.1583 [1.0000]	115.8% { 117.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 377451	(6.39 , N/A) (N/A , 0.00 , N/A)	6154.9	N/A	1.1877 [1.0000]	118.8% { 114.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (4)
Acquired: 2023/04/14 - 15:08

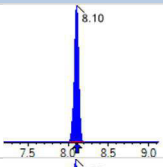
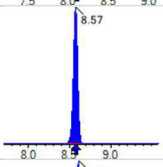
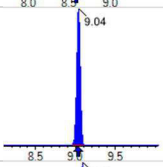
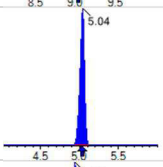
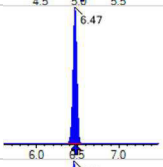
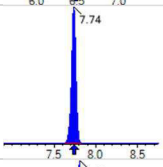
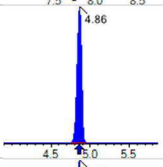
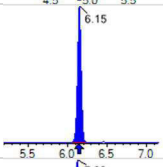
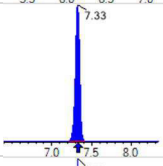
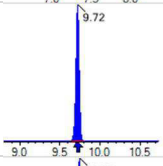
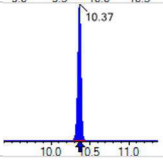
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 385099	(6.99 , N/A) (N/A , -0.01 , N/A)	6087.5	N/A	1.2689 [1.0000]	126.9% { 120.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 372359	(7.57 , N/A) (N/A , -0.01 , N/A)	2426.8	N/A	1.1476 [1.0000]	114.8% { 113.3% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 573402	(6.47 , N/A) (N/A , 0.00 , N/A)	13213.1	N/A	1.2803 [1.0000]	128.0% { 117.5% }			
13C4_PFOS_IIS	(503.0 / 79.9) 890138	(7.74 , N/A) (N/A , -0.01 , N/A)	1810.2	N/A	1.3089 [1.0000]	130.9% { 125.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1318470	(3.38 , N/A) (N/A , 0.01 , N/A)	4669.5	N/A	7.9925 [8.0000]	99.9% { 121.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 978090	(4.27 , N/A) (N/A , 0.00 , N/A)	3419.5	N/A	3.7170 [4.0000]	92.9% { 113.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 690199	(5.09 , N/A) (N/A , 0.01 , N/A)	2493.7	N/A	2.0728 [2.0000]	103.6% { 117.6% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 652060	(5.76 , N/A) (N/A , 0.01 , N/A)	2265.8	N/A	2.2419 [2.0000]	112.1% { 119.5% }			
13C8_PFOA_EIS	(421.0 / 376.0) 740809	(6.38 , N/A) (N/A , 0.00 , N/A)	16745.3	N/A	1.9885 [2.0000]	99.4% { 112.2% }			
13C9_PFNA_EIS	(472.0 / 427.0) 352878	(6.99 , N/A) (N/A , 0.00 , N/A)	3123.4	N/A	0.9753 [1.0000]	97.5% { 110.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 406921	(7.57 , N/A) (N/A , -0.01 , N/A)	11078.4	N/A	0.9741 [1.0000]	97.4% { 115.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (4)
Acquired: 2023/04/14 - 15:08

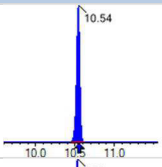
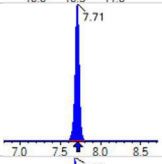
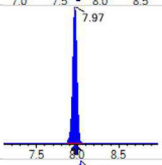
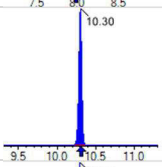
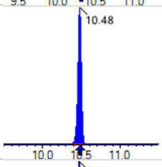
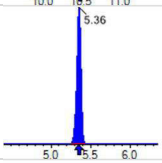
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 414961	(8.10 , N/A) (N/A , 0.00 , N/A)	2423.4	N/A	1.0701 [1.0000]	107.0% { 113.8% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 354312	(8.57 , N/A) (N/A , 0.01 , N/A)	1954.8	N/A	1.0672 [1.0000]	106.7% { 134.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 289073	(9.04 , N/A) (N/A , 0.01 , N/A)	1294.9	N/A	0.9233 [1.0000]	92.3% { 124.1% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1509552	(5.04 , N/A) (N/A , 0.01 , N/A)	3510.6	N/A	1.6769 [2.0000]	83.8% { 114.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1022440	(6.47 , N/A) (N/A , 0.00 , N/A)	2939.2	N/A	1.9345 [2.0000]	96.7% { 115.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 2001234	(7.74 , N/A) (N/A , -0.01 , N/A)	3884.6	N/A	1.8557 [2.0000]	92.8% { 120.5% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 293320	(4.86 , N/A) (N/A , 0.01 , N/A)	1427.6	N/A	3.6176 [4.0000]	90.4% { 122.6% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 369067	(6.15 , N/A) (N/A , 0.00 , N/A)	1868.7	N/A	3.9882 [4.0000]	99.7% { 127.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 418745	(7.33 , N/A) (N/A , 0.00 , N/A)	3563.3	N/A	3.4179 [4.0000]	85.4% { 112.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2501724	(9.72 , N/A) (N/A , 0.00 , N/A)	4032.0	N/A	1.4290 [2.0000]	71.5% { 102.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 697891	(10.37 , N/A) (N/A , 0.00 , N/A)	2417.3	N/A	1.8682 [2.0000]	93.4% { 111.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (4)
Acquired: 2023/04/14 - 15:08

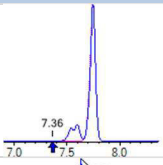
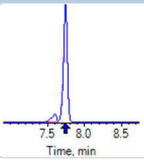
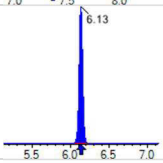
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 669715	(10.54 , N/A) (N/A , 0.00 , N/A)	3264.6	N/A	2.1728 [2.0000]	108.6% { 119.6% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 750869	(7.71 , N/A) (N/A , -0.01 , N/A)	2101.8	N/A	3.2486 [4.0000]	81.2% { 115.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 624999	(7.97 , N/A) (N/A , 0.00 , N/A)	5306.8	N/A	3.2967 [4.0000]	82.4% { 112.7% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2429255	(10.30 , N/A) (N/A , 0.00 , N/A)	1814.7	N/A	19.5872 [20.0000]	97.9% { 111.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3390063	(10.48 , N/A) (N/A , 0.00 , N/A)	1931.7	N/A	20.6811 [20.0000]	103.4% { 115.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1378925	(5.36 , N/A) (N/A , 0.01 , N/A)	2456.6	N/A	7.3406 [8.0000]	91.8% { 113.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01502-PEM2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (5)
Acquired: 2023/04/14 - 15:21

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOS	(499.0 / 80.0) 29967 (499.0 / 99.0) N/A	(7.36 , 0.95) (-0.39 , N/A , #Value!)	6.8	N/A 0.0 0.0	0.0266	N/A			
TDCA	(499.0 / 80.0) 8202132	(6.13 , 0.79) (N/A , #Value! , 0.0)	14849.0	N/A 0.0 0.0	8.4717	N/A			

$$R.T.PFOS - R.T.TDCA \ > \ 1 \ minute$$

7.36 - 6.13 = 1.23 Pass

QUALITY CONTROL RAW DATA

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0119-BLK1	File ID:	S2023-04-14A (7)
Sampled:		Prepared:	04/10/23 08:18	Analyzed:	04/14/23 15:47
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.80 U	1.6	0.80	0.21	U
PFPEA	0.40 U	0.80	0.40	0.065	U
PFHXA	0.20 U	0.40	0.20	0.055	U
PFHPA	0.20 U	0.40	0.20	0.041	U
PFOA	0.30 U	0.40	0.30	0.15	U
PFNA	0.20 U	0.40	0.20	0.082	U
PFDA	0.20 U	0.40	0.20	0.10	U
PFUnA	0.30 U	0.40	0.30	0.16	U
PFDOA	0.20 U	0.40	0.20	0.11	U
PFTRDA	0.30 U	0.40	0.30	0.20	U
PFTEDA	0.30 U	0.40	0.30	0.20	U
PFBS	0.20 U	0.40	0.20	0.037	U
PFPES	0.20 U	0.40	0.20	0.063	U
PFHXS	0.20 U	0.40	0.20	0.032	U
PFHPS	0.20 U	0.40	0.20	0.051	U
PFOS	0.166 J	0.40	0.20	0.064	MI2, J
PFNS	0.20 U	0.40	0.20	0.12	U
PFDS	0.30 U	0.40	0.30	0.15	U
PFDOS	0.20 U	0.40	0.20	0.12	U
4:2FTS	0.80 U	1.6	0.80	0.29	U
6:2FTS	0.80 U	1.6	0.80	0.31	U
8:2FTS	0.80 U	1.6	0.80	0.082	U
PFOSA	0.20 U	0.40	0.20	0.10	U
NMeFOSA	0.80 U	1.6	0.80	0.47	U
NEtFOSA	0.80 U	1.6	0.80	0.41	U
NMeFOSAA	0.20 U	0.40	0.20	0.11	U
NEtFOSAA	0.20 U	0.40	0.20	0.11	U
NMeFOSE	1.2 U	1.6	1.2	1.0	U
NEtFOSE	1.2 U	1.6	1.2	1.0	U
HFPO-DA	0.40 U				

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0119-BLK1	File ID:	S2023-04-14A (7)
Sampled:		Prepared:	04/10/23 08:18	Analyzed:	04/14/23 15:47
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014
Instrument:	Saphira				
Column:	1				

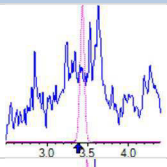
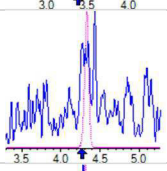
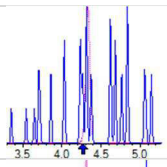
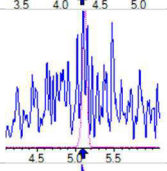
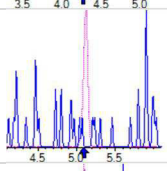
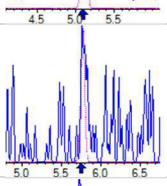
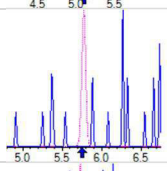
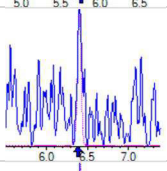
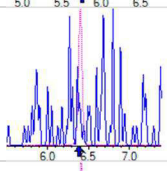
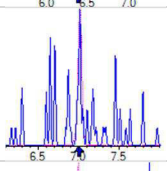
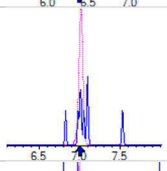
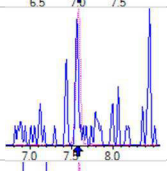
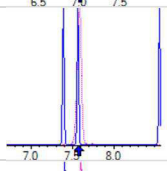
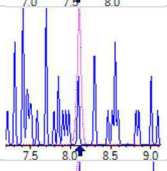
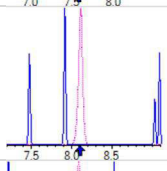
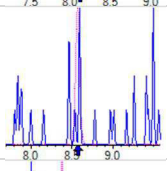
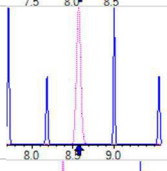
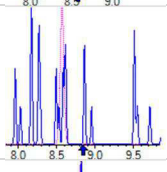
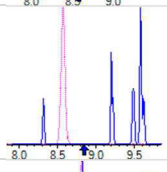
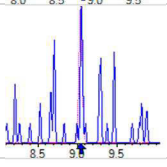
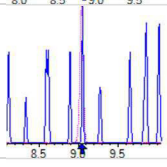
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.40 U	0.80	0.40	0.12	U
PFEESA	0.40 U	0.80	0.40	0.11	U
PFMPA	0.40 U	0.80	0.40	0.054	U
PFMBA	0.40 U	0.80	0.40	0.091	U
NFDHA	0.40 U	0.80	0.40	0.30	U
9CL-PF3ONS	0.40 U	0.80	0.40	0.21	U
11CL-PF3OUDS	0.40 U	0.80	0.40	0.21	U
3:3FTCA	0.80 U	1.6	0.80	0.57	U
5:3FTCA	0.80 U	1.6	0.80	0.44	U
7:3FTCA	0.80 U	1.6	0.80	0.55	U

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (7)
Acquired: 2023/04/14 - 15:47

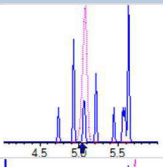
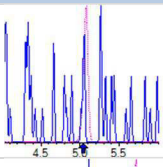
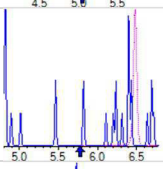
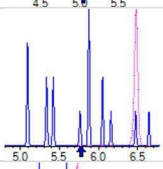
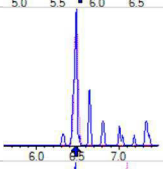
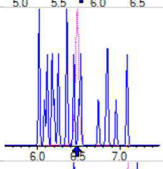
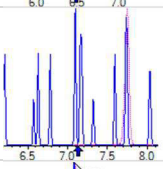
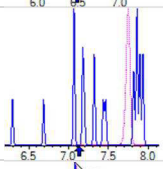
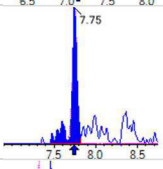
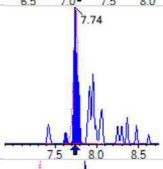
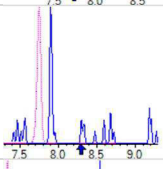
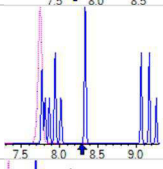
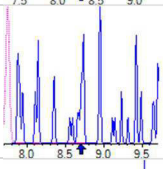
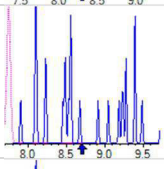
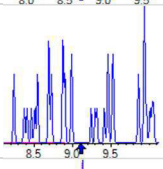
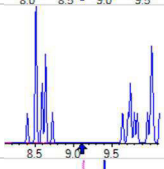
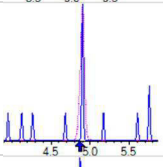
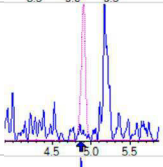
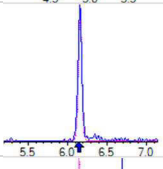
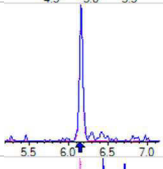
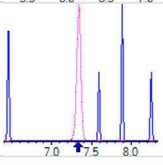
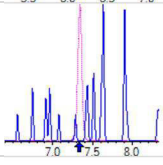
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (7)
Acquired: 2023/04/14 - 15:47

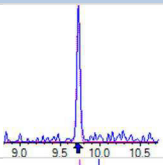
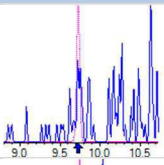
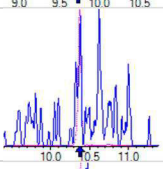
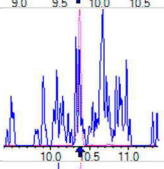
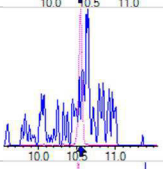
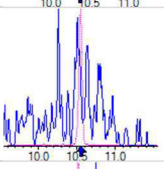
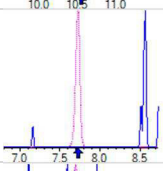
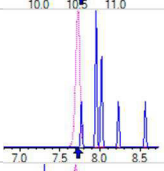
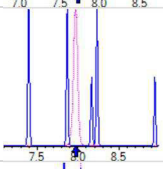
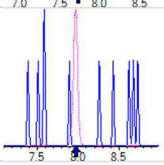
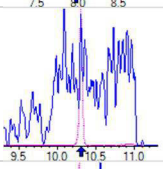
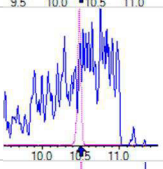
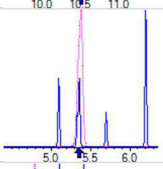
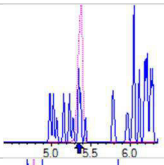
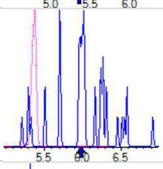
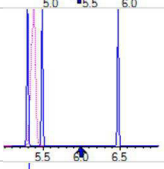
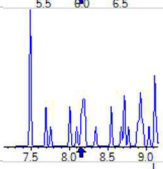
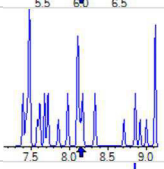
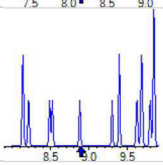
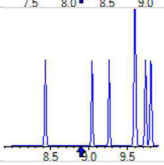
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) N/A (399.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) 41435 (499.0 / 99.0) 6227	(7.75 , 1.00) (0.00 , N/A , 0.4)	79.0 15140.7	0.1503 67.2 65.3	0.0416	N/A			MI2 ABK 4/16/23
PFNS	(549.0 / 80.0) N/A (549.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDS	(599.0 / 80.0) N/A (599.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoS	(699.0 / 80.0) N/A (699.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (7)
Acquired: 2023/04/14 - 15:47

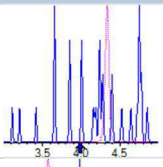
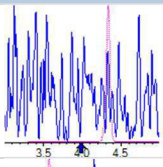
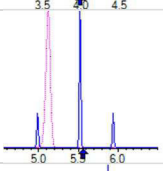
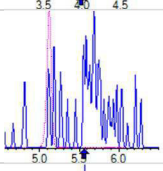
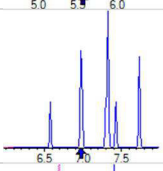
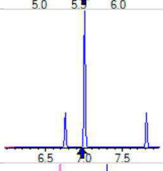
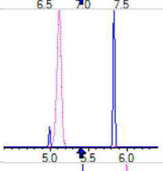
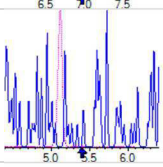
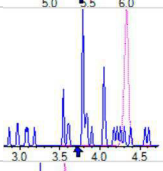
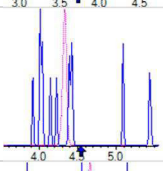
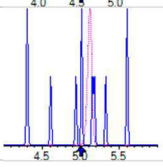
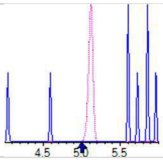
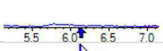
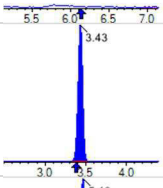
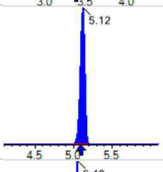
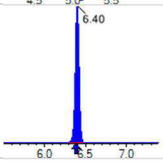
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) N/A (570.0 / 483.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSAA	(584.0 / 419.0) N/A (584.0 / 526.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSE	(616.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (7)
Acquired: 2023/04/14 - 15:47

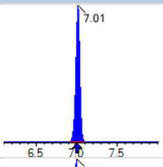
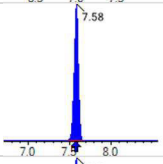
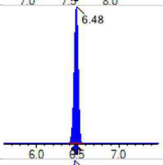
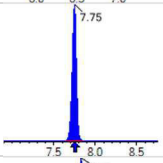
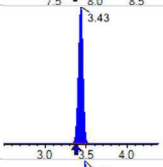
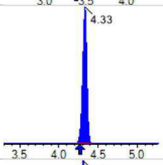
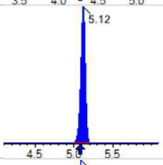
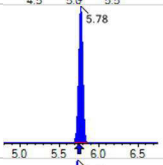
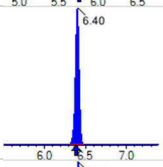
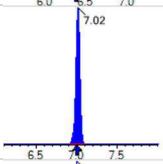
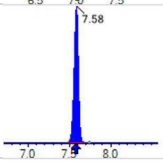
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 164463	(3.43 , N/A) (N/A , 0.06 , N/A)	1442.8	N/A	1.3491 [1.0000]	134.9% { 130.3% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 248123	(5.12 , N/A) (N/A , 0.03 , N/A)	2665.5	N/A	1.2233 [1.0000]	122.3% { 124.2% }			
13C4_PFOA_IIS	(417.0 / 372.0) 402328	(6.40 , N/A) (N/A , 0.02 , N/A)	2727.4	N/A	1.2660 [1.0000]	126.6% { 121.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (7)
Acquired: 2023/04/14 - 15:47

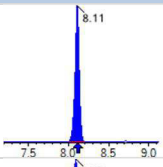
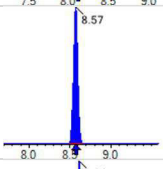
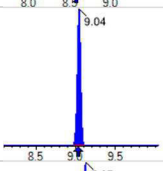
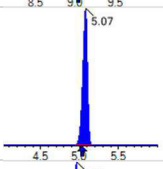
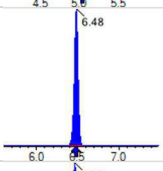
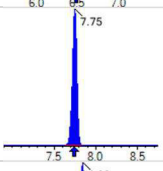
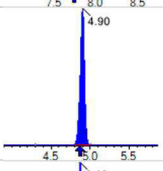
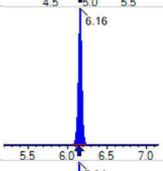
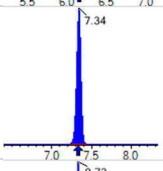
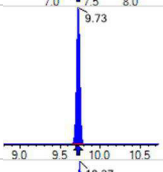
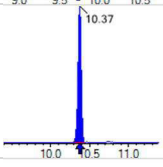
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 386203	(7.01 , N/A) (N/A , 0.02 , N/A)	2651.1	N/A	1.2725 [1.0000]	127.3% { 120.4% }			
13C2_PFDA_IIS	(515.0 / 470.1) 399435	(7.58 , N/A) (N/A , 0.01 , N/A)	2556.9	N/A	1.2310 [1.0000]	123.1% { 121.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 597524	(6.48 , N/A) (N/A , 0.02 , N/A)	2846.9	N/A	1.3342 [1.0000]	133.4% { 122.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 888222	(7.75 , N/A) (N/A , 0.00 , N/A)	1942.9	N/A	1.3061 [1.0000]	130.6% { 125.2% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1245849	(3.43 , N/A) (N/A , 0.06 , N/A)	5709.7	N/A	7.1448 [8.0000]	89.3% { 114.6% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 982507	(4.33 , N/A) (N/A , 0.07 , N/A)	3316.3	N/A	3.5351 [4.0000]	88.4% { 114.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 622158	(5.12 , N/A) (N/A , 0.03 , N/A)	2582.7	N/A	1.7690 [2.0000]	88.5% { 106.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 593033	(5.78 , N/A) (N/A , 0.02 , N/A)	3083.4	N/A	1.9305 [2.0000]	96.5% { 108.7% }			
13C8_PFOA_EIS	(421.0 / 376.0) 708112	(6.40 , N/A) (N/A , 0.02 , N/A)	2614.5	N/A	1.7832 [2.0000]	89.2% { 107.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 307978	(7.02 , N/A) (N/A , 0.02 , N/A)	2191.7	N/A	0.8488 [1.0000]	84.9% { 96.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 343262	(7.58 , N/A) (N/A , 0.01 , N/A)	1696.2	N/A	0.7660 [1.0000]	76.6% { 97.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (7)
Acquired: 2023/04/14 - 15:47

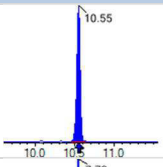
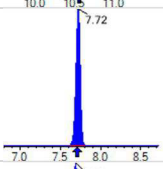
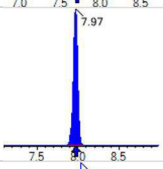
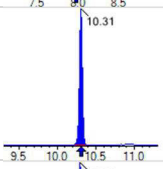
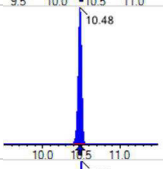
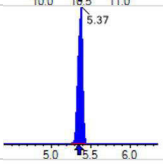
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 345856	(8.11 , N/A) (N/A , 0.01 , N/A)	7067.6	N/A	0.8315 [1.0000]	83.1% { 94.9% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 285637	(8.57 , N/A) (N/A , 0.01 , N/A)	6249701.6	N/A	0.8020 [1.0000]	80.2% { 108.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 220721	(9.04 , N/A) (N/A , 0.01 , N/A)	1801.2	N/A	0.6572 [1.0000]	65.7% { 94.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1441085	(5.07 , N/A) (N/A , 0.04 , N/A)	2308.2	N/A	1.5362 [2.0000]	76.8% { 109.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 940537	(6.48 , N/A) (N/A , 0.02 , N/A)	2768.9	N/A	1.7077 [2.0000]	85.4% { 105.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1762313	(7.75 , N/A) (N/A , 0.01 , N/A)	3532.3	N/A	1.6377 [2.0000]	81.9% { 106.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 286075	(4.90 , N/A) (N/A , 0.04 , N/A)	1030.2	N/A	3.3858 [4.0000]	84.6% { 119.6% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 335126	(6.16 , N/A) (N/A , 0.02 , N/A)	1320.5	N/A	3.4752 [4.0000]	86.9% { 116.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 363222	(7.34 , N/A) (N/A , 0.01 , N/A)	1825.5	N/A	2.8451 [4.0000]	71.1% { 97.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2356186	(9.73 , N/A) (N/A , 0.01 , N/A)	3162.9	N/A	1.3488 [2.0000]	67.4% { 96.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 194933	(10.37 , N/A) (N/A , 0.00 , N/A)	1134.1	N/A	0.5229 [2.0000]	26.1% { 31.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (7)
Acquired: 2023/04/14 - 15:47

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 137089	(10.55 , N/A) (N/A , 0.00 , N/A)	1141.0	N/A	0.4457 [2.0000]	22.3% { 24.5% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 644138	(7.72 , N/A) (N/A , 0.01 , N/A)	2072.6	N/A	2.7929 [4.0000]	69.8% { 98.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 498818	(7.97 , N/A) (N/A , 0.00 , N/A)	4349.0	N/A	2.6368 [4.0000]	65.9% { 90.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1147005	(10.31 , N/A) (N/A , 0.00 , N/A)	1177.0	N/A	9.2683 [20.0000]	46.3% { 52.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 1690770	(10.48 , N/A) (N/A , 0.00 , N/A)	1296.6	N/A	10.3368 [20.0000]	51.7% { 57.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1278041	(5.37 , N/A) (N/A , 0.02 , N/A)	2187.2	N/A	6.4416 [8.0000]	80.5% { 105.4% }			

ANALYSIS DATA SHEET

LCS

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0119-BS1	File ID:	S2023-04-14A (8)
Sampled:		Prepared:	04/10/23 08:18	Analyzed:	04/14/23 16:00
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	DL	Q
PFBA	16.2	1.6	0.21	
PFPEA	7.80	0.80	0.065	
PFHXA	4.00	0.40	0.055	
PFHPA	4.25	0.40	0.041	
PFOA	4.07	0.40	0.15	
PFNA	4.03	0.40	0.082	
PFDA	3.70	0.40	0.10	
PFUnA	3.66	0.40	0.16	
PFDOA	4.35	0.40	0.11	
PFTRDA	3.99	0.40	0.20	
PFTEDA	4.44	0.40	0.20	
PFBS	3.43	0.40	0.037	
PFPES	3.83	0.40	0.063	
PFHXS	3.64	0.40	0.032	
PFHPS	4.01	0.40	0.051	
PFOS	3.74	0.40	0.064	
PFNS	3.55	0.40	0.12	
PFDS	3.21	0.40	0.15	
PFDOS	3.19	0.40	0.12	
4:2FTS	14.4	1.6	0.29	
6:2FTS	17.2	1.6	0.31	
8:2FTS	14.9	1.6	0.082	
PFOSA	4.73	0.40	0.10	
NMeFOSA	15.6	1.6	0.47	
NEtFOSA	15.4	1.6	0.41	
NMeFOSAA	3.67	0.40	0.11	
NEtFOSAA	3.58	0.40	0.11	
NMeFOSE	17.2	1.6	1.0	
NEtFOSE	15.7	1.6	1.0	
HFPO-DA	7.95			

ANALYSIS DATA SHEET

LCS

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0119-BS1	File ID:	S2023-04-14A (8)
Sampled:		Prepared:	04/10/23 08:18	Analyzed:	04/14/23 16:00
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014
Instrument:	Saphira				
Column:	1				

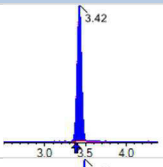
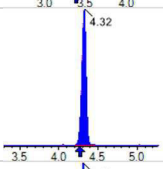
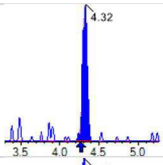
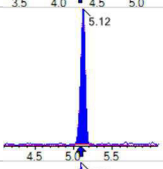
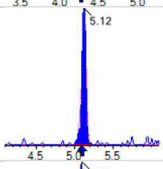
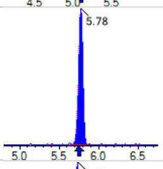
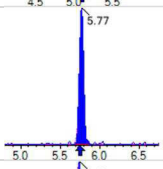
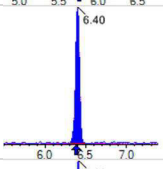
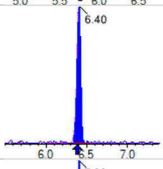
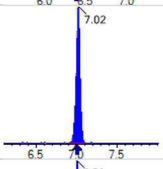
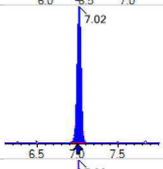
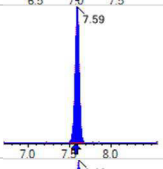
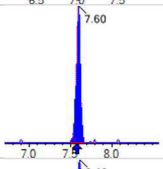
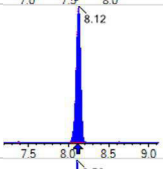
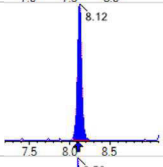
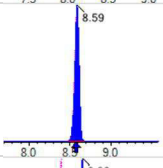
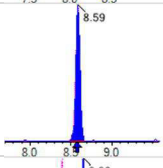
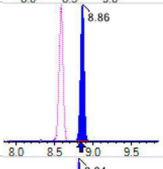
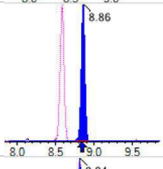
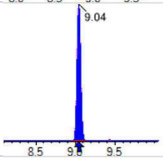
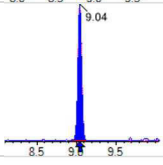
COMPOUND	CONC. (ng/L)	LOQ	DL	Q
ADONA	8.44	0.80	0.12	
PFEESA	6.95	0.80	0.11	
PFMPA	8.79	0.80	0.054	
PFMBA	7.79	0.80	0.091	
NFDHA	7.68	0.80	0.30	
9CL-PF3ONS	7.99	0.80	0.21	
11CL-PF3OUDS	7.13	0.80	0.21	
3:3FTCA	16.1	1.6	0.57	
5:3FTCA	14.8	1.6	0.44	
7:3FTCA	15.5	1.6	0.55	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (8)
Acquired: 2023/04/14 - 16:00

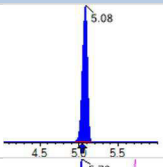
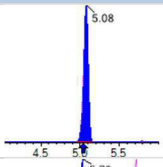
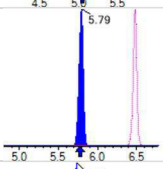
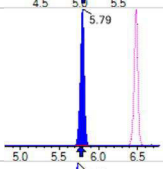
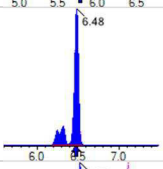
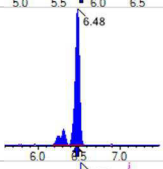
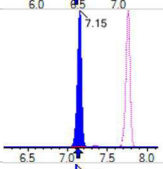
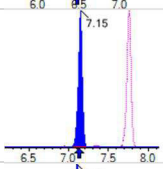
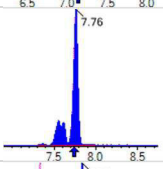
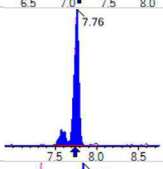
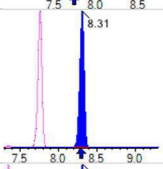
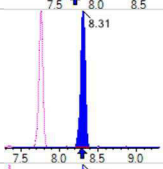
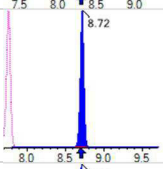
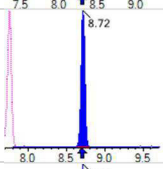
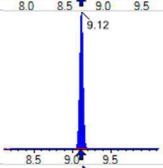
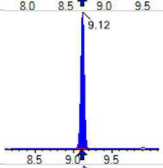
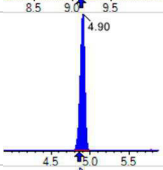
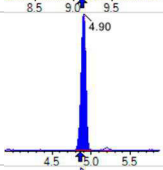
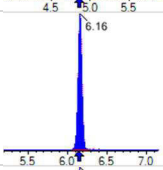
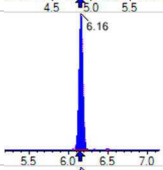
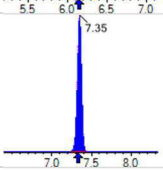
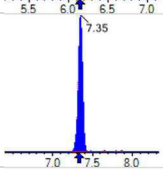
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 556042	(3.42 , 1.00) (0.00 , N/A , 0.0)	275.3	N/A 0.0 0.0	4.0561 [4.0000]	101.4%			
PFPeA	(263.0 / 219.0) 485611 (263.0 / 69.0) 5073	(4.32 , 1.00) (0.00 , N/A , 0.3)	1252.1 85.9	0.0104 79.6 89.2	1.9496 [2.0000]	97.5%			
PFHxA	(313.0 / 269.0) 311542 (313.0 / 119.0) 27212	(5.12 , 1.00) (0.00 , N/A , 0.1)	443.6 407.0	0.0873 80.0 89.7	0.9992 [1.0000]	99.9%			
PFHpA	(363.0 / 319.0) 278841 (363.0 / 169.0) 79165	(5.78 , 1.00) (0.00 , N/A , 0.2)	946.3 1697.7	0.2839 93.0 91.2	1.0635 [1.0000]	106.4%			
PFOA	(413.0 / 369.0) 356444 (413.0 / 169.0) 105224	(6.40 , 1.00) (0.00 , N/A , -0.3)	747.1 701.5	0.2952 94.3 94.3	1.0163 [1.0000]	101.6%			
PFNA	(463.0 / 419.0) 318113 (463.0 / 169.0) 60170	(7.02 , 1.00) (0.00 , N/A , 0.0)	2865.4 26412.0	0.1891 88.6 91.7	1.0065 [1.0000]	100.6%			
PFDA	(513.0 / 469.0) 340617 (513.0 / 169.0) 38785	(7.59 , 1.00) (0.00 , N/A , -0.4)	816.9 2065.4	0.1139 99.3 102.1	0.9261 [1.0000]	92.6%			
PFUnA	(563.0 / 519.0) 324860 (563.0 / 169.0) 34021	(8.12 , 1.00) (0.00 , N/A , 0.3)	1122.1 662.2	0.1047 88.6 92.0	0.9151 [1.0000]	91.5%			
PFDoA	(613.0 / 569.0) 304922 (613.0 / 169.0) 47985	(8.59 , 1.00) (0.00 , N/A , 0.1)	1074.4 3335.1	0.1574 91.8 106.5	1.0883 [1.0000]	108.8%			
PFTrDA	(663.0 / 619.0) 254734 (663.0 / 169.0) 53301	(8.86 , 1.03) (N/A , 0.02 , 0.2)	1166.7 4531.5	0.2092 84.4 80.5	0.9978 [1.0000]	99.8%			
PFTeDA	(713.0 / 669.0) 252270 (713.0 / 169.0) 49560	(9.04 , 1.00) (0.00 , N/A , 0.1)	1333.3 618.5	0.1965 97.5 98.8	1.1102 [1.0000]	111.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (8)
Acquired: 2023/04/14 - 16:00

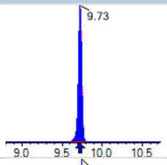
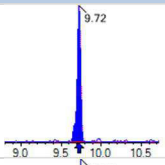
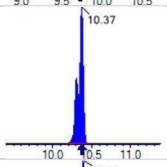
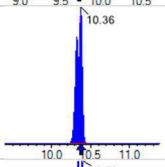
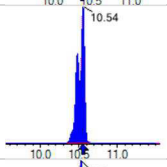
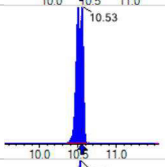
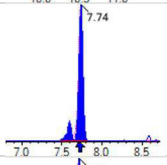
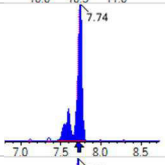
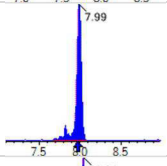
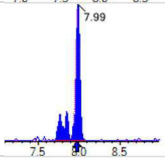
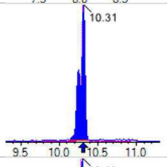
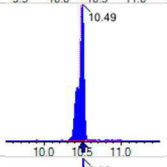
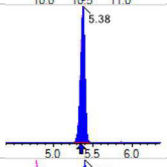
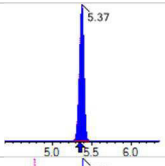
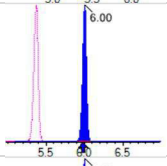
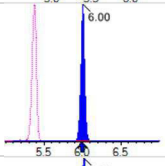
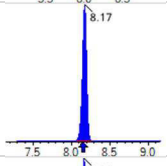
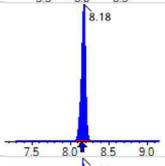
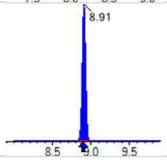
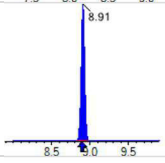
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 462918 (299.0 / 99.0) 308850	(5.08 , 1.00) (0.00 , N/A , 0.0)	13670.3 2382.6	0.6672 103.8 100.7	0.8563 [0.8847]	96.8%			
PFPeS	(349.0 / 80.0) 828534 (349.0 / 99.0) 284008	(5.79 , 0.89) (N/A , 0.02 , -0.1)	4263.3 3251.6	0.3428 101.1 98.6	0.9575 [0.9384]	102.0%			
PFHxS	(399.0 / 80.0) 671414 (399.0 / 99.0) 243791	(6.48 , 1.00) (0.00 , N/A , 0.1)	8266459.4 4417217.0	0.3631 104.8 105.3	0.9106 [0.9110]	100.0%			
PFHpS	(449.0 / 80.0) 786383 (449.0 / 99.0) 218671	(7.15 , 0.92) (N/A , 0.02 , 0.1)	17818546.4 52037.0	0.2781 100.2 100.5	1.0033 [0.9514]	105.5%			
PFOS	(499.0 / 80.0) 1027471 (499.0 / 99.0) 221544	(7.76 , 1.00) (0.00 , N/A , 0.0)	747.7 1672.2	0.2156 96.4 93.6	0.9341 [0.9275]	100.7%			
PFNS	(549.0 / 80.0) 912718 (549.0 / 99.0) 223983	(8.31 , 1.07) (N/A , 0.02 , 0.0)	94578.7 416365.5	0.2454 101.4 101.1	0.8879 [0.9599]	92.5%			
PFDS	(599.0 / 80.0) 933375 (599.0 / 99.0) 219661	(8.72 , 1.12) (N/A , 0.02 , 0.1)	7802.6 1928.9	0.2353 105.0 105.1	0.8032 [0.9631]	83.4%			
PFDoS	(699.0 / 80.0) 712029 (699.0 / 99.0) 153493	(9.12 , 1.18) (N/A , 0.01 , -0.1)	2519.1 1127.6	0.2156 90.1 100.0	0.7965 [0.9696]	82.2%			
4:2FTS	(327.0 / 307.0) 764034 (327.0 / 81.0) 471569	(4.90 , 1.00) (0.00 , N/A , 0.1)	2364.8 659.0	0.6172 90.8 100.0	3.6045 [3.7381]	96.4%			
6:2FTS	(427.0 / 407.0) 625104 (427.0 / 81.0) 460284	(6.16 , 1.00) (0.00 , N/A , 0.1)	1161.1 1311.6	0.7363 104.6 102.0	4.2933 [3.7962]	113.1%			
8:2FTS	(527.0 / 507.0) 561019 (527.0 / 81.0) 405881	(7.35 , 1.00) (0.00 , N/A , 0.0)	2118.4 1050.0	0.7235 107.1 95.9	3.7262 [3.8332]	97.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (8)
Acquired: 2023/04/14 - 16:00

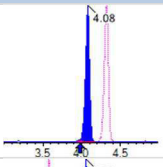
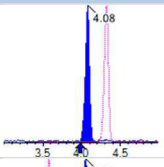
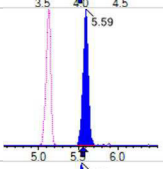
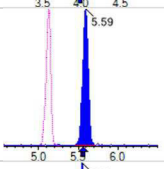
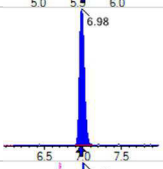
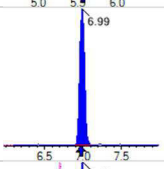
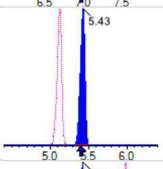
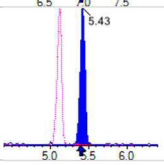
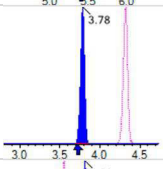
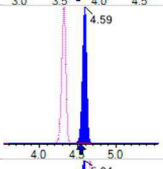
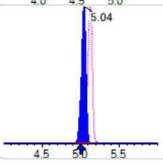
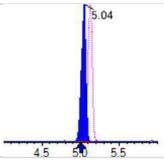
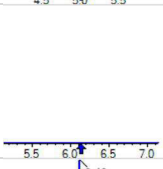
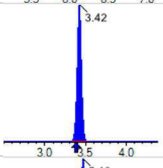
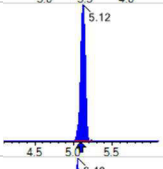
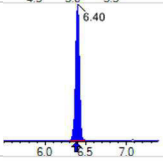
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 1314135 (498.0 / 478.0) 31471	(9.73 , 1.00) (0.00 , N/A , 0.1)	3016.8 285.3	0.0239 96.7 107.9	1.1830 [1.0000]	118.3%			
NMeFOSA	(512.0 / 219.0) 450565 (512.0 / 169.0) 397505	(10.37 , 1.00) (0.00 , N/A , 1.0)	2709.6 1706.0	0.8822 101.7 104.5	3.9075 [4.0000]	97.7%			
NEtFOSA	(526.0 / 219.0) 491368 (526.0 / 169.0) 626679	(10.54 , 1.00) (-0.01 , N/A , 0.8)	1882.8 2550.8	1.2754 102.0 102.4	3.8621 [4.0000]	96.6%			
NMeFOSAA	(570.0 / 419.0) 139497 (570.0 / 483.0) 67569	(7.74 , 1.00) (0.00 , N/A , -0.2)	17287.6 243.4	0.4844 104.6 90.9	0.9175 [1.0000]	91.8%			
NEtFOSAA	(584.0 / 419.0) 110010 (584.0 / 526.0) 61898	(7.99 , 1.00) (0.01 , N/A , 0.2)	26718.8 460.2	0.5627 92.2 98.2	0.8946 [1.0000]	89.5%			
NMeFOSE	(616.0 / 59.0) 261588	(10.31 , 1.00) (0.01 , N/A , 0.0)	459.1	N/A 0.0 0.0	4.2970 [4.0000]	107.4%			
NEtFOSE	(630.0 / 59.0) 506530	(10.49 , 1.00) (0.01 , N/A , 0.0)	692.3	N/A 0.0 0.0	3.9166 [4.0000]	97.9%			
HFPO-DA	(285.0 / 169.0) 285520 (285.0 / 185.0) 774782	(5.38 , 1.00) (0.00 , N/A , 0.1)	1588.7 2096.1	2.7136 104.3 104.3	1.9874 [2.0000]	99.4%			
ADONA	(377.0 / 85.0) 1083323 (377.0 / 251.0) 108365	(6.00 , 1.12) (N/A , 0.02 , 0.1)	2957.2 24441.6	0.1000 100.8 98.5	2.1104 [1.8854]	111.9%			
9Cl-Pf3ONS	(531.0 / 351.0) 3086308 (533.0 / 353.0) 938512	(8.17 , 1.52) (N/A , 0.02 , -0.1)	3465.6 1647.2	0.3041 104.7 93.3	1.9970 [1.8665]	107.0%			
11Cl-PF3OUDS	(631.0 / 451.0) 1627512 (633.0 / 453.0) 590366	(8.91 , 1.66) (N/A , 0.01 , 0.0)	3943.4 3508.5	0.3627 108.2 107.2	1.7816 [1.8864]	94.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (8)
Acquired: 2023/04/14 - 16:00

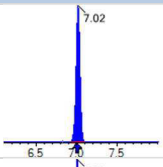
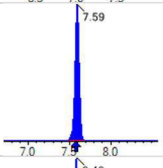
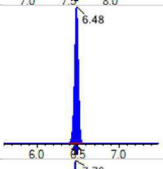
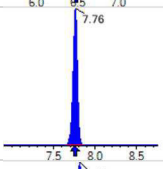
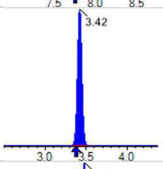
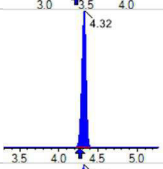
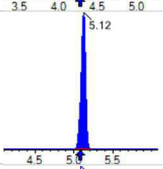
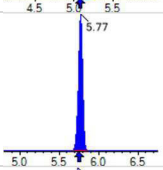
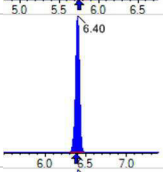
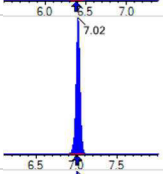
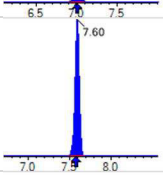
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 36687 (241.0 / 117.0) 58086	(4.08 , 0.94) (N/A , 0.10 , 0.1)	47.5 34.1	1.5833 95.9 98.1	4.0196 [4.0000]	100.5%			
5:3FTCA	(341.0 / 236.7) 181713 (341.0 / 217.0) 335711	(5.59 , 1.09) (N/A , 0.04 , 0.2)	1018.1 600.8	1.8475 117.8 111.9	3.7079 [4.0000]	92.7%			
7:3FTCA	(441.0 / 317.0) 333117 (441.0 / 337.0) 285176	(6.98 , 1.36) (N/A , 0.01 , -0.3)	693.9 1021.8	0.8561 99.4 101.2	3.8816 [4.0000]	97.0%			
PFEESA	(315.0 / 135.0) 681715 (315.0 / 83.0) 164625	(5.43 , 1.06) (N/A , 0.03 , 0.1)	3072.3 386.8	0.2415 99.0 99.7	1.7381 [1.7849]	97.4%			
PFMPA	(229.0 / 85.0) 116530	(3.78 , 0.88) (N/A , 0.06 , 0.0)	2771.2	N/A 0.0 0.0	2.1969 [2.0000]	109.8%			
PFMBA	(279.0 / 85.0) 378126	(4.59 , 1.06) (N/A , 0.06 , 0.0)	2388.2	N/A 0.0 0.0	1.9469 [2.0000]	97.3%			
NFDHA	(295.0 / 201.0) 306032 (295.0 / 85.0) 302372	(5.04 , 0.98) (N/A , 0.04 , 0.0)	2769.6 1507.2	0.9880 100.9 103.4	1.9202 [2.0000]	96.0%			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000 [1.0000]	N/A%			BS2,
13C3_PFBA_IIS	(216.0 / 172.0) 152522	(3.42 , N/A) (N/A , 0.05 , N/A)	1713.0	N/A	1.2511 [1.0000]	125.1% { 120.9% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 234217	(5.12 , N/A) (N/A , 0.04 , N/A)	1458.2	N/A	1.1548 [1.0000]	115.5% { 117.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 377568	(6.40 , N/A) (N/A , 0.02 , N/A)	1646.9	N/A	1.1881 [1.0000]	118.8% { 114.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (8)
Acquired: 2023/04/14 - 16:00

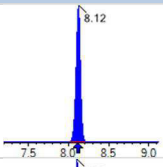
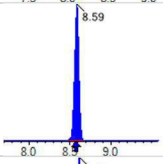
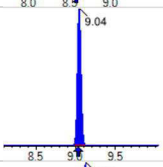
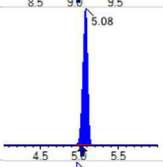
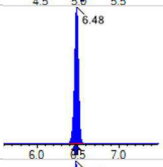
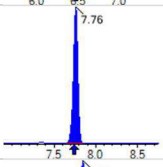
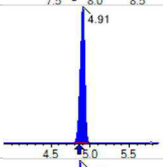
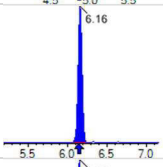
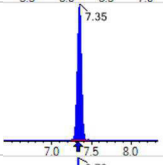
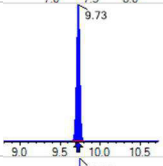
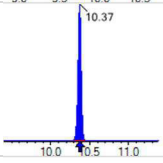
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 375620	(7.02 , N/A) (N/A , 0.02 , N/A)	49365.8	N/A	1.2376 [1.0000]	123.8% { 117.1% }			
13C2_PFDA_IIS	(515.0 / 470.1) 354398	(7.59 , N/A) (N/A , 0.02 , N/A)	2738.8	N/A	1.0922 [1.0000]	109.2% { 107.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 535092	(6.48 , N/A) (N/A , 0.02 , N/A)	3629.0	N/A	1.1948 [1.0000]	119.5% { 109.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 902475	(7.76 , N/A) (N/A , 0.02 , N/A)	1715.1	N/A	1.3270 [1.0000]	132.7% { 127.2% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1255070	(3.42 , N/A) (N/A , 0.05 , N/A)	4817.5	N/A	7.7612 [8.0000]	97.0% { 115.5% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1036757	(4.32 , N/A) (N/A , 0.06 , N/A)	4046.4	N/A	3.9518 [4.0000]	98.8% { 120.6% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 646459	(5.12 , N/A) (N/A , 0.04 , N/A)	1913.5	N/A	1.9473 [2.0000]	97.4% { 110.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 608328	(5.77 , N/A) (N/A , 0.02 , N/A)	2536.0	N/A	2.0979 [2.0000]	104.9% { 111.5% }			
13C8_PFOA_EIS	(421.0 / 376.0) 743922	(6.40 , N/A) (N/A , 0.02 , N/A)	3633.8	N/A	1.9962 [2.0000]	99.8% { 112.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 342661	(7.02 , N/A) (N/A , 0.02 , N/A)	13282.6	N/A	0.9710 [1.0000]	97.1% { 107.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 391287	(7.60 , N/A) (N/A , 0.02 , N/A)	10377.2	N/A	0.9842 [1.0000]	98.4% { 111.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (8)
Acquired: 2023/04/14 - 16:00

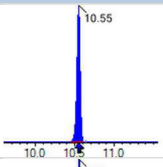
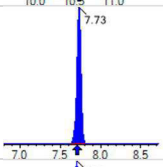
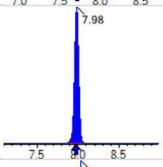
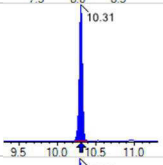
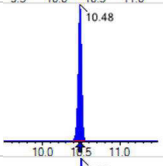
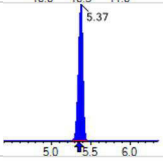
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 403486	(8.12 , N/A) (N/A , 0.02 , N/A)	3248.5	N/A	1.0933 [1.0000]	109.3% { 110.7% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 308929	(8.59 , N/A) (N/A , 0.02 , N/A)	1969.9	N/A	0.9776 [1.0000]	97.8% { 117.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 247940	(9.04 , N/A) (N/A , 0.01 , N/A)	2198.7	N/A	0.8321 [1.0000]	83.2% { 106.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1515878	(5.08 , N/A) (N/A , 0.05 , N/A)	3495.1	N/A	1.8044 [2.0000]	90.2% { 114.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 937949	(6.48 , N/A) (N/A , 0.02 , N/A)	1555.7	N/A	1.9017 [2.0000]	95.1% { 105.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1944048	(7.76 , N/A) (N/A , 0.02 , N/A)	2496.9	N/A	1.7781 [2.0000]	88.9% { 117.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 285525	(4.91 , N/A) (N/A , 0.05 , N/A)	924.7	N/A	3.7736 [4.0000]	94.3% { 119.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 340322	(6.16 , N/A) (N/A , 0.02 , N/A)	1229.4	N/A	3.9408 [4.0000]	98.5% { 117.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 426856	(7.35 , N/A) (N/A , 0.02 , N/A)	1688.8	N/A	3.7336 [4.0000]	93.3% { 114.7% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2535744	(9.73 , N/A) (N/A , 0.01 , N/A)	3156.8	N/A	1.4286 [2.0000]	71.4% { 103.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 277936	(10.37 , N/A) (N/A , 0.00 , N/A)	1635.8	N/A	0.7338 [2.0000]	36.7% { 44.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (8)
Acquired: 2023/04/14 - 16:00

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 242211	(10.55 , N/A) (N/A , 0.00 , N/A)	1588.7	N/A	0.7751 [2.0000]	38.8% { 43.3% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 715469	(7.73 , N/A) (N/A , 0.02 , N/A)	1818.8	N/A	3.0531 [4.0000]	76.3% { 109.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 556084	(7.98 , N/A) (N/A , 0.02 , N/A)	20366.8	N/A	2.8931 [4.0000]	72.3% { 100.3% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1115210	(10.31 , N/A) (N/A , 0.00 , N/A)	978.5	N/A	8.8691 [20.0000]	44.3% { 51.3% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2626493	(10.48 , N/A) (N/A , 0.00 , N/A)	1684.4	N/A	15.8039 [20.0000]	79.0% { 89.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1360979	(5.37 , N/A) (N/A , 0.02 , N/A)	3264.4	N/A	7.2669 [8.0000]	90.8% { 112.2% }			

ANALYSIS DATA SHEET

MRL Check

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0119-MRL1	File ID:	S2023-04-14A (9)
Sampled:		Prepared:	04/10/23 08:18	Analyzed:	04/14/23 16:12
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	DL	Q
PFBA	1.42	1.6	0.21	J
PFPEA	0.746	0.80	0.065	J
PFHXA	0.462	0.40	0.055	
PFHPA	0.483	0.40	0.041	IR2
PFOA	0.523	0.40	0.15	
PFNA	0.440	0.40	0.082	
PFDA	0.477	0.40	0.10	IR1
PFUnA	0.306	0.40	0.16	J
PFDOA	0.412	0.40	0.11	
PFTRDA	0.365	0.40	0.20	J
PFTEDA	0.406	0.40	0.20	
PFBS	0.309	0.40	0.037	J
PFPES	0.330	0.40	0.063	J
PFHXS	0.384	0.40	0.032	J
PFHPS	0.353	0.40	0.051	J
PFOS	0.450	0.40	0.064	MI2
PFNS	0.340	0.40	0.12	J
PFDS	0.324	0.40	0.15	J
PFDOS	0.282	0.40	0.12	J
4:2FTS	1.36	1.6	0.29	J
6:2FTS	2.39	1.6	0.31	
8:2FTS	1.41	1.6	0.082	J
PFOSA	0.498	0.40	0.10	
NMeFOSA	1.53	1.6	0.47	J
NEtFOSA	1.40	1.6	0.41	J
NMeFOSAA	0.322	0.40	0.11	J
NEtFOSAA	0.348	0.40	0.11	J
NMeFOSE	1.42	1.6	1.0	J
NEtFOSE	1.34	1.6	1.0	J
HFPO-DA	0.742	0.80	0.13	J

ANALYSIS DATA SHEET

MRL Check

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0119-MRL1	File ID:	S2023-04-14A (9)
Sampled:		Prepared:	04/10/23 08:18	Analyzed:	04/14/23 16:12
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0119	Sequence:	SC01502	Calibration:	2315014
Instrument:	Saphira				
Column:	1				

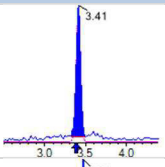
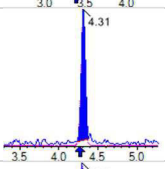
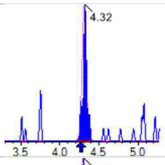
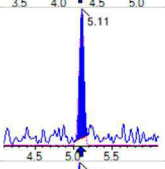
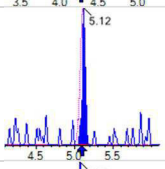
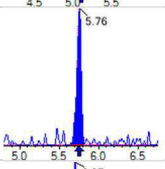
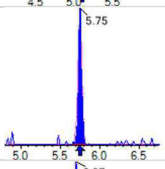
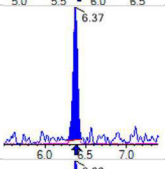
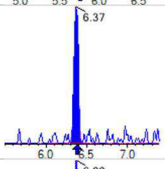
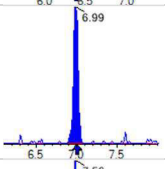
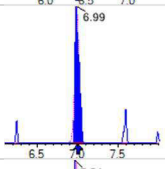
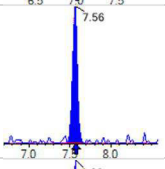
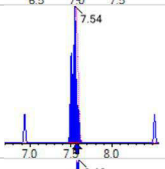
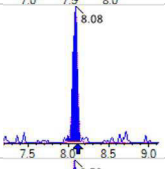
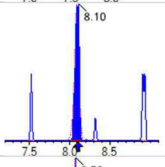
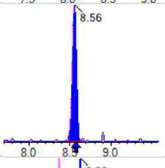
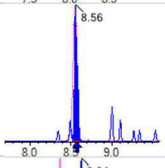
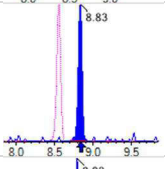
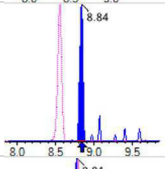
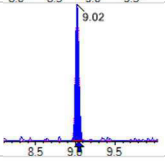
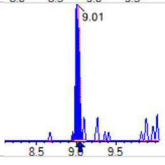
COMPOUND	CONC. (ng/L)	LOQ	DL	Q
ADONA	0.761	0.80	0.12	J
PFEESA	0.581	0.80	0.11	J
PFMPA	0.802	0.80	0.054	
PFMBA	0.860	0.80	0.091	
NFDHA	0.650	0.80	0.30	J
9CL-PF3ONS	0.615	0.80	0.21	J
11CL-PF3OUDS	0.703	0.80	0.21	J
3:3FTCA	1.39	1.6	0.57	J
5:3FTCA	1.63	1.6	0.44	
7:3FTCA	1.61	1.6	0.55	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (9)
Acquired: 2023/04/14 - 16:12

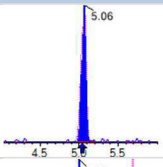
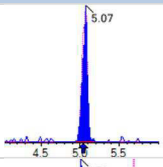
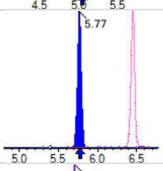
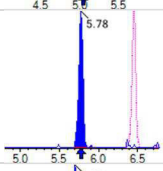
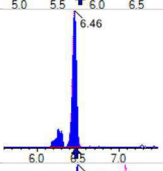
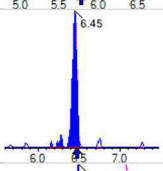
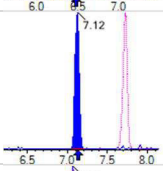
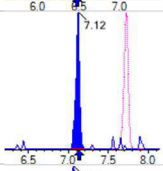
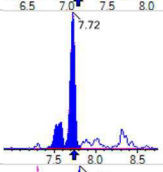
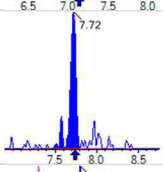
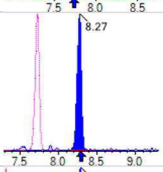
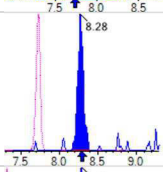
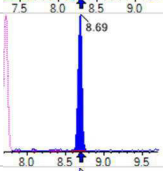
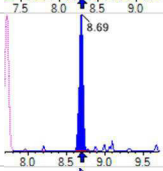
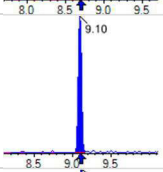
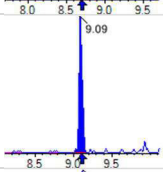
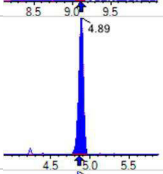
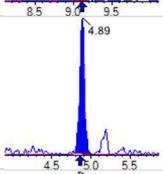
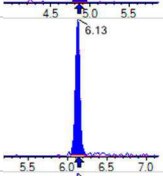
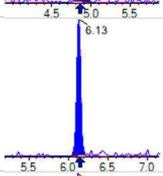
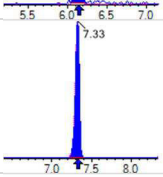
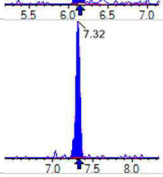
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 53111	(3.41 , 1.00) (0.00 , N/A , 0.0)	97.4	N/A 0.0 0.0	0.3547 [0.4000]	88.7%			
PFPeA	(263.0 / 219.0) 47940 (263.0 / 69.0) 1342	(4.31 , 1.00) (0.00 , N/A , -0.5)	28.5 49.6	0.0280 213.2 239.1	0.1865 [0.2000]	93.3%			
PFHxA	(313.0 / 269.0) 37714 (313.0 / 119.0) 4904	(5.11 , 1.00) (0.00 , N/A , -0.8)	16.6 191.3	0.1300 119.2 133.5	0.1155 [0.1000]	115.5%			
PFHpA	(363.0 / 319.0) 31699 (363.0 / 169.0) 16698	(5.76 , 1.00) (0.00 , N/A , 0.3)	126.6 46721.9	0.5268 172.5 169.2	0.1207 [0.1000]	120.7%			IR2,
PFOA	(413.0 / 369.0) 45216 (413.0 / 169.0) 14310	(6.37 , 1.00) (0.00 , N/A , 0.1)	15.7 12.7	0.3165 101.1 101.1	0.1308 [0.1000]	130.8%			
PFNA	(463.0 / 419.0) 32752 (463.0 / 169.0) 5697	(6.99 , 1.00) (0.00 , N/A , 0.1)	1568.7 304637.0	0.1740 81.5 84.4	0.1100 [0.1000]	110.0%			
PFDA	(513.0 / 469.0) 44033 (513.0 / 169.0) 2182	(7.56 , 1.00) (0.00 , N/A , 1.3)	109.7 256404.1	0.0495 43.2 44.4	0.1193 [0.1000]	119.3%			IR1,
PFUnA	(563.0 / 519.0) 26500 (563.0 / 169.0) 2936	(8.08 , 1.00) (0.00 , N/A , -0.7)	105.8 1597.9	0.1108 93.7 97.3	0.0766 [0.1000]	76.6%			
PFDoA	(613.0 / 569.0) 31326 (613.0 / 169.0) 3638	(8.56 , 1.00) (0.01 , N/A , 0.0)	251.5 126.1	0.1161 67.8 78.6	0.1029 [0.1000]	102.9%			
PFTrDA	(663.0 / 619.0) 25319 (663.0 / 169.0) 6774	(8.83 , 1.03) (N/A , -0.01 , -0.2)	187.1 432.1	0.2675 108.0 102.9	0.0913 [0.1000]	91.3%			
PFTeDA	(713.0 / 669.0) 27058 (713.0 / 169.0) 4473	(9.02 , 1.00) (0.00 , N/A , 0.6)	219.2 85.8	0.1653 82.0 83.1	0.1015 [0.1000]	101.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (9)
Acquired: 2023/04/14 - 16:12

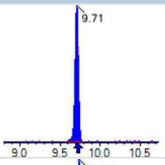
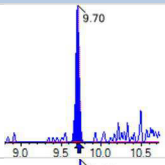
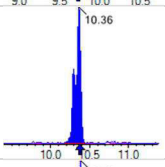
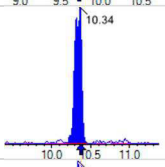
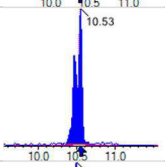
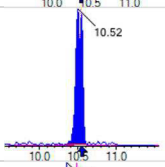
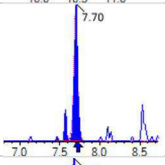
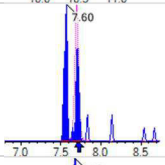
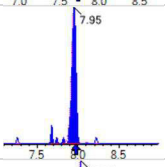
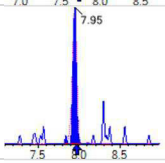
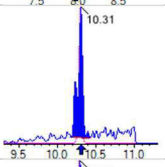
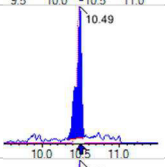
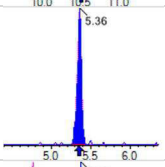
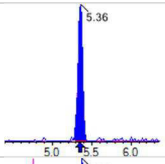
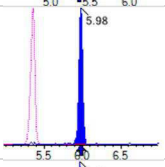
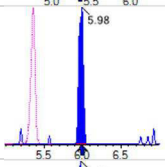
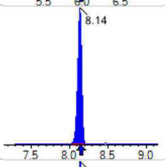
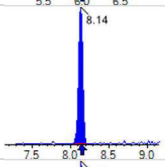
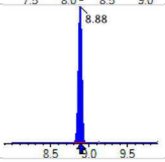
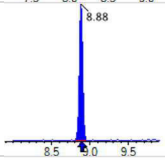
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 40899 (299.0 / 99.0) 32092	(5.06 , 1.00) (0.00 , N/A , -0.2)	739.2 546.9	0.7846 122.0 118.4	0.0773 [0.0885]	87.4%			
PFPeS	(349.0 / 80.0) 77667 (349.0 / 99.0) 25697	(5.77 , 0.89) (N/A , 0.00 , -0.5)	227423.6 9208.0	0.3309 97.6 95.2	0.0825 [0.0938]	87.9%			
PFHxS	(399.0 / 80.0) 77089 (399.0 / 99.0) 25203	(6.46 , 1.00) (0.00 , N/A , 0.6)	93078.4 60991.1	0.3269 94.4 94.8	0.0961 [0.0911]	105.5%			
PFHpS	(449.0 / 80.0) 68722 (449.0 / 99.0) 14636	(7.12 , 0.92) (N/A , -0.01 , 0.1)	879.7 1102.7	0.2130 76.8 76.9	0.0883 [0.0951]	92.8%			
PFOS	(499.0 / 80.0) 122916 (499.0 / 99.0) 22173	(7.72 , 1.00) (0.00 , N/A , 0.1)	177.5 214.7	0.1804 80.6 78.3	0.1125 [0.0927]	121.3%			MI2 ABK 4/16/23
PFNS	(549.0 / 80.0) 86745 (549.0 / 99.0) 19222	(8.27 , 1.07) (N/A , -0.01 , -0.3)	1666.1 767519.8	0.2216 91.6 91.3	0.0849 [0.0960]	88.5%			
PFDS	(599.0 / 80.0) 93464 (599.0 / 99.0) 21953	(8.69 , 1.13) (N/A , -0.01 , -0.1)	566.9 9740.4	0.2349 104.8 104.9	0.0810 [0.0963]	84.1%			
PFDoS	(699.0 / 80.0) 62500 (699.0 / 99.0) 16882	(9.10 , 1.18) (N/A , -0.01 , 0.4)	344.8 204.3	0.2701 112.9 125.3	0.0704 [0.0970]	72.6%			
4:2FTS	(327.0 / 307.0) 78774 (327.0 / 81.0) 40922	(4.89 , 1.00) (0.00 , N/A , 0.0)	829.1 96.6	0.5195 76.4 84.2	0.3410 [0.3738]	91.2%			
6:2FTS	(427.0 / 407.0) 95113 (427.0 / 81.0) 77511	(6.13 , 1.00) (-0.01 , N/A , 0.0)	197.0 186.7	0.8149 115.7 112.9	0.5965 [0.3796]	157.1%			
8:2FTS	(527.0 / 507.0) 51314 (527.0 / 81.0) 41311	(7.33 , 1.00) (0.00 , N/A , 0.5)	7485.1 217.8	0.8051 119.1 106.7	0.3534 [0.3833]	92.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (9)
Acquired: 2023/04/14 - 16:12

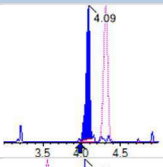
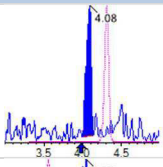
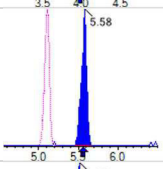
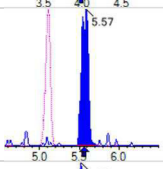
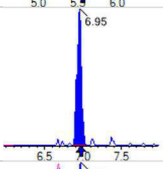
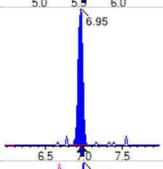
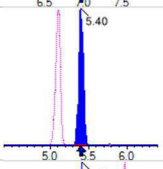
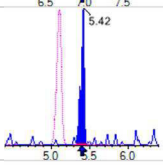
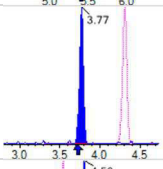
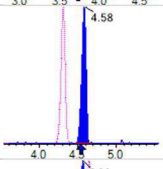
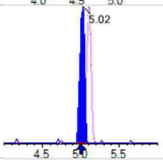
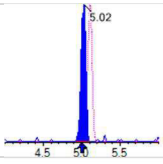
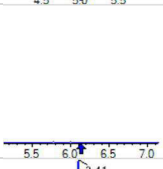
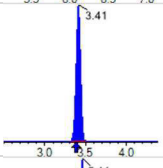
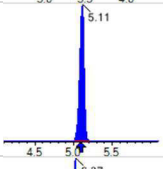
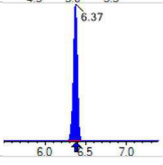
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 140629 (498.0 / 478.0) 3718	(9.71 , 1.00) (0.00 , N/A , 0.3)	643.8 46.8	0.0264 106.8 119.1	0.1246 [0.1000]	124.6%			
NMeFOSA	(512.0 / 219.0) 40575 (512.0 / 169.0) 33134	(10.36 , 1.00) (0.00 , N/A , 1.2)	524.7 279.7	0.8166 94.1 96.7	0.3828 [0.4000]	95.7%			
NEtFOSA	(526.0 / 219.0) 40120 (526.0 / 169.0) 49490	(10.53 , 1.00) (-0.01 , N/A , 0.7)	324.9 304.8	1.2336 98.7 99.0	0.3509 [0.4000]	87.7%			
NMeFOSAA	(570.0 / 419.0) 12995 (570.0 / 483.0) 6067	(7.70 , 1.00) (0.00 , N/A , 6.2)	628080.7 2025.0	0.4669 100.8 87.6	0.0804 [0.1000]	80.4%			
NEtFOSAA	(584.0 / 419.0) 11115 (584.0 / 526.0) 6067	(7.95 , 1.00) (0.01 , N/A , 0.3)	4977.1 2174.0	0.5458 89.4 95.2	0.0869 [0.1000]	86.9%			
NMeFOSE	(616.0 / 59.0) 30914	(10.31 , 1.00) (0.01 , N/A , 0.0)	95.9	N/A 0.0 0.0	0.3540 [0.4000]	88.5%			
NEtFOSE	(630.0 / 59.0) 40643	(10.49 , 1.00) (0.01 , N/A , 0.0)	114.3	N/A 0.0 0.0	0.3359 [0.4000]	84.0%			
HFPO-DA	(285.0 / 169.0) 28770 (285.0 / 185.0) 76765	(5.36 , 1.00) (0.00 , N/A , 0.3)	410.1 220.1	2.6683 102.6 102.6	0.1856 [0.2000]	92.8%			
ADONA	(377.0 / 85.0) 105331 (377.0 / 251.0) 9290	(5.98 , 1.12) (N/A , -0.01 , 0.0)	655.6 724.1	0.0882 88.9 86.8	0.1902 [0.1885]	100.9%			
9Cl-Pf3ONS	(531.0 / 351.0) 256169 (533.0 / 353.0) 86736	(8.14 , 1.52) (N/A , -0.02 , 0.1)	899.0 288.6	0.3386 116.6 103.9	0.1536 [0.1867]	82.3%			
11Cl-PF3OUDS	(631.0 / 451.0) 173228 (633.0 / 453.0) 56702	(8.88 , 1.66) (N/A , -0.01 , 0.1)	1388.3 595.2	0.3273 97.7 96.7	0.1758 [0.1886]	93.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (9)
Acquired: 2023/04/14 - 16:12

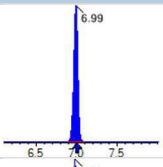
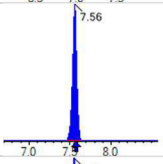
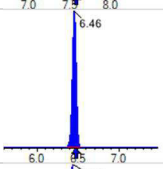
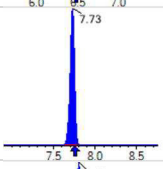
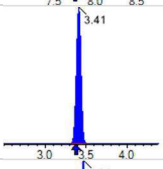
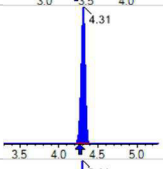
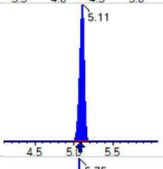
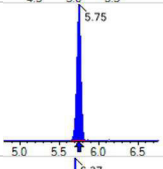
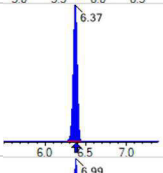
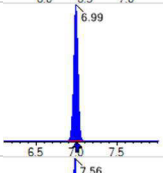
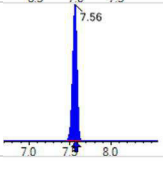
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 3269 (241.0 / 117.0) 4780	(4.09 , 0.95) (N/A , 0.10 , 0.1)	21.1 10.9	1.4623 88.6 90.6	0.3471 [0.4000]	86.8%			
5:3FTCA	(341.0 / 236.7) 20859 (341.0 / 217.0) 36453	(5.58 , 1.09) (N/A , 0.02 , 0.3)	1647.7 123.5	1.7476 111.4 105.8	0.4065 [0.4000]	101.6%			
7:3FTCA	(441.0 / 317.0) 36206 (441.0 / 337.0) 25224	(6.95 , 1.36) (N/A , -0.02 , 0.0)	224.7 315.3	0.6967 80.9 82.3	0.4029 [0.4000]	100.7%			
PFEESA	(315.0 / 135.0) 59626 (315.0 / 83.0) 16969	(5.40 , 1.06) (N/A , 0.01 , -0.8)	308.1 88.0	0.2846 116.6 117.4	0.1452 [0.1785]	81.3%			
PFMPA	(229.0 / 85.0) 10968	(3.77 , 0.87) (N/A , 0.05 , 0.0)	466.0	N/A 0.0 0.0	0.2004 [0.2000]	100.2%			
PFMBA	(279.0 / 85.0) 43108	(4.58 , 1.06) (N/A , 0.05 , 0.0)	981.0	N/A 0.0 0.0	0.2151 [0.2000]	107.6%			
NFDHA	(295.0 / 201.0) 27117 (295.0 / 85.0) 28540	(5.02 , 0.98) (N/A , 0.02 , 0.0)	1758.5 279.1	1.0525 107.5 110.2	0.1625 [0.2000]	81.2%			
TDCA	(499.0 / 80.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000 [0.1000]	N/A%			BS2,
13C3_PFBA_IIS	(216.0 / 172.0) 162943	(3.41 , N/A) (N/A , 0.04 , N/A)	1582.1	N/A	1.3366 [1.0000]	133.7% { 129.1% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 241922	(5.11 , N/A) (N/A , 0.02 , N/A)	8919.8	N/A	1.1928 [1.0000]	119.3% { 121.1% }			
13C4_PFOA_IIS	(417.0 / 372.0) 395006	(6.37 , N/A) (N/A , -0.01 , N/A)	5882.3	N/A	1.2430 [1.0000]	124.3% { 119.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (9)
Acquired: 2023/04/14 - 16:12

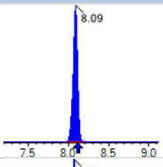
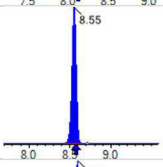
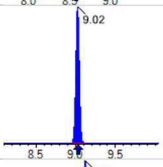
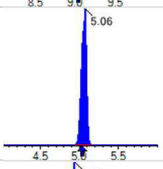
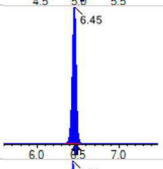
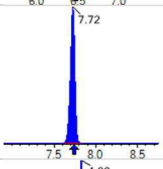
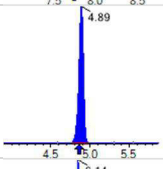
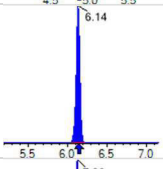
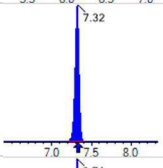
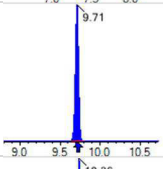
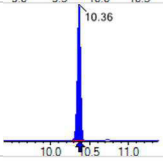
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 397437	(6.99 , N/A) (N/A , -0.01 , N/A)	2949.5	N/A	1.3095 [1.0000]	131.0% { 123.9% }			
13C2_PFDA_IIS	(515.0 / 470.1) 387011	(7.56 , N/A) (N/A , -0.02 , N/A)	2903.6	N/A	1.1927 [1.0000]	119.3% { 117.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 579629	(6.46 , N/A) (N/A , -0.01 , N/A)	4302.6	N/A	1.2942 [1.0000]	129.4% { 118.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 900376	(7.73 , N/A) (N/A , -0.02 , N/A)	1353.8	N/A	1.3239 [1.0000]	132.4% { 126.9% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1370829	(3.41 , N/A) (N/A , 0.04 , N/A)	5397.9	N/A	7.9349 [8.0000]	99.2% { 126.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1069694	(4.31 , N/A) (N/A , 0.05 , N/A)	4390.4	N/A	3.9475 [4.0000]	98.7% { 124.4% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 676865	(5.11 , N/A) (N/A , 0.02 , N/A)	1582.4	N/A	1.9739 [2.0000]	98.7% { 115.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 609287	(5.75 , N/A) (N/A , 0.00 , N/A)	1584.0	N/A	2.0343 [2.0000]	101.7% { 111.7% }			
13C8_PFOA_EIS	(421.0 / 376.0) 733144	(6.37 , N/A) (N/A , -0.01 , N/A)	5404.0	N/A	1.8805 [2.0000]	94.0% { 111.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 322889	(6.99 , N/A) (N/A , -0.01 , N/A)	3404.5	N/A	0.8647 [1.0000]	86.5% { 101.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 392527	(7.56 , N/A) (N/A , -0.01 , N/A)	272665.1	N/A	0.9041 [1.0000]	90.4% { 111.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (9)
Acquired: 2023/04/14 - 16:12

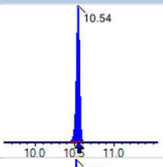
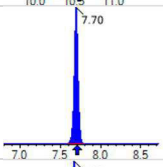
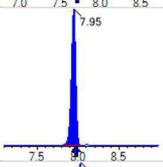
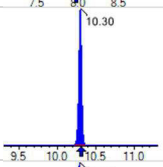
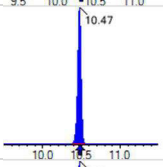
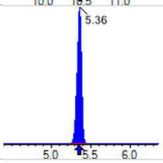
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 393081	(8.09 , N/A) (N/A , -0.01 , N/A)	2558927.9	N/A	0.9753 [1.0000]	97.5% { 107.8% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 335662	(8.55 , N/A) (N/A , -0.01 , N/A)	1510.6	N/A	0.9727 [1.0000]	97.3% { 127.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 290989	(9.02 , N/A) (N/A , -0.01 , N/A)	1516.0	N/A	0.8943 [1.0000]	89.4% { 124.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1483432	(5.06 , N/A) (N/A , 0.03 , N/A)	2550.6	N/A	1.6301 [2.0000]	81.5% { 112.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1020587	(6.45 , N/A) (N/A , -0.01 , N/A)	2379.2	N/A	1.9102 [2.0000]	95.5% { 114.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1931334	(7.72 , N/A) (N/A , -0.02 , N/A)	2408.9	N/A	1.7705 [2.0000]	88.5% { 116.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 311185	(4.89 , N/A) (N/A , 0.03 , N/A)	846.9	N/A	3.7967 [4.0000]	94.9% { 130.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 372723	(6.14 , N/A) (N/A , -0.01 , N/A)	1688.1	N/A	3.9844 [4.0000]	99.6% { 129.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 411630	(7.32 , N/A) (N/A , -0.01 , N/A)	2491.6	N/A	3.3238 [4.0000]	83.1% { 110.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2576585	(9.71 , N/A) (N/A , -0.01 , N/A)	3422.7	N/A	1.4550 [2.0000]	72.8% { 105.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 255470	(10.36 , N/A) (N/A , -0.01 , N/A)	1491.8	N/A	0.6761 [2.0000]	33.8% { 40.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0119-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-12A
Path: S2023-04-14A (9)
Acquired: 2023/04/14 - 16:12

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 217685	(10.54 , N/A) (N/A , 0.00 , N/A)	1807.5	N/A	0.6982 [2.0000]	34.9% { 38.9% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 760304	(7.70 , N/A) (N/A , -0.02 , N/A)	3365.8	N/A	3.2520 [4.0000]	81.3% { 116.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 578488	(7.95 , N/A) (N/A , -0.02 , N/A)	12731.7	N/A	3.0167 [4.0000]	75.4% { 104.4% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1599570	(10.30 , N/A) (N/A , -0.01 , N/A)	1220.3	N/A	12.7507 [20.0000]	63.8% { 73.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2456980	(10.47 , N/A) (N/A , -0.01 , N/A)	1627.5	N/A	14.8184 [20.0000]	74.1% { 83.9% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1468420	(5.36 , N/A) (N/A , 0.01 , N/A)	2397.6	N/A	7.5909 [8.0000]	94.9% { 121.1% }			

PREPARATION BATCH SUMMARY

EPA 1633

Laboratory:	APPL, LLC			Work Order:	23D0043
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Batch:	BCD0119	Batch Matrix:	Water	Preparation:	EPA 1633

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
AF-RHMW225401-WGN01B-2304W1	23D0043-01	04/10/23 08:18	543.66	2.00
AF-HDMW225303-WGN01LF-2304W1	23D0043-02	04/10/23 08:18	521.29	2.00
AF-RHMW10-WGN01LF-2304W1	23D0043-03	04/10/23 08:18	523.27	2.00
AF-RHMW10-WGFD01LF-2304W1	23D0043-04	04/10/23 08:18	544.20	2.00
Blank	BCD0119-BLK1	04/10/23 08:18	500.00	2.00
LCS	BCD0119-BS1	04/10/23 08:18	500.00	2.00
MRL Check	BCD0119-MRL1	04/10/23 08:18	500.00	2.00

PREPARATION BENCH SHEET
Organics

Print Date/Time: 04/17/2023 10:08 am

BCD0119

Matrix: Water

Prepared using: PFAS - EPA 1633

Analyses
1633

Spiking Solution(s)
23C0549 PFAS - MIX 1633 10ng/mL

Surrogate Solution(s)
23C0277 MPFAC-HIF-ES 20.0ng/mL

Lab Number	Sample and Source ID	Date Due	Extract by	Prepared	Initial (mL)	Final (mL)	ul Spike	ul Surrogate	Extraction Comments
23C0239-01RE2	AF-RHMW17-WGN01LF-2303W3	04/04/2023	04/21/2023	4/10/2023 8:18:00AM	560.73	2		200	Re-extract added 4/6/2023 by HGH
23C0239-01RE3	AF-RHMW17-WGN01LF-2303W3	04/04/2023	04/21/2023	4/10/2023 8:18:00AM	560.73	2		200	Re-extract added 4/6/2023 by HGH
23C0239-02RE2	AF-RHMW17D-WGN01LF-2303W3	04/04/2023	04/21/2023	4/10/2023 8:18:00AM	533.62	2		200	Re-extract added 4/6/2023 by HGH
23C0239-02RE3	AF-RHMW17D-WGN01LF-2303W3	04/04/2023	04/21/2023	4/10/2023 8:18:00AM	533.62	2		200	Re-extract added 4/6/2023 by HGH
23C0239-03RE2	AF-RHMW17D-WQFB01-2303W3	04/04/2023	04/21/2023	4/10/2023 8:18:00AM	581.54	2		200	Re-extract added 4/6/2023 by HGH
23C0239-03RE3	AF-RHMW17D-WQFB01-2303W3	04/04/2023	04/21/2023	4/10/2023 8:18:00AM	581.54	2		200	Re-extract added 4/6/2023 by HGH
23C0253-01	WP013P-EB-SOIL-01	04/12/2023	04/24/2023	4/10/2023 8:18:00AM	520.59	2		200	
23C0253-01RE1	WP013P-EB-SOIL-01	04/12/2023	04/24/2023	4/10/2023 8:18:00AM	520.59	2		200	Added 4/14/2023 by DAG
23C0253-02	WP013P-EB-SOIL-02	04/12/2023	04/24/2023	4/10/2023 8:18:00AM	530.05	2		200	
23C0253-02RE1	WP013P-EB-SOIL-02	04/12/2023	04/24/2023	4/10/2023 8:18:00AM	530.05	2		200	Added 4/14/2023 by DAG
23C0279-01	WP013P-VAS-002-24	04/14/2023	04/26/2023	4/10/2023 8:18:00AM	522.45	2		200	11mL of soil left
23C0279-01RE1	WP013P-VAS-002-24	04/14/2023	04/26/2023	4/10/2023 8:18:00AM	522.45	2		200	11mL of soil left
23C0279-02	WP013P-FRB-VAS-01	04/14/2023	04/26/2023	4/10/2023 8:18:00AM	541.36	2		200	
23C0279-02RE1	WP013P-FRB-VAS-01	04/14/2023	04/26/2023	4/10/2023 8:18:00AM	541.36	2		200	Added 4/14/2023 by DAG
23C0279-03	WP013P-VAS-001-12	04/14/2023	04/27/2023	4/10/2023 8:18:00AM	517.8	2		200	<2.5 mL of soil left
23C0279-03RE1	WP013P-VAS-001-12	04/14/2023	04/27/2023	4/10/2023 8:18:00AM	517.8	2		200	<2.5 mL of soil left
23C0279-04	WP013P-VAS-002-12	04/14/2023	04/27/2023	4/10/2023 8:18:00AM	493.52	2		200	
23C0279-04RE1	WP013P-VAS-002-12	04/14/2023	04/27/2023	4/10/2023 8:18:00AM	493.52	2		200	Added 4/14/2023 by DAG
23D0021-02	IDW-DRUM-02	04/18/2023	05/01/2023	4/10/2023 8:18:00AM	528.65	2		200	7mL of soil left
23D0021-02RE1	IDW-DRUM-02	04/18/2023	05/01/2023	4/10/2023 8:18:00AM	528.65	2		200	7mL of soil left
23D0043-01	AF-RHMW225401-WGN01B-2304W1	04/13/2023	05/03/2023	4/10/2023 8:18:00AM	543.66	2		200	"Report relevant surrogates"

Spiking Witnessed By _____ Date _____ Preparation Reviewed By _____ Date _____ Extracts Received By _____ Date _____

Table of Contents

PREPARATION BENCH SHEET
Organics

Print Date/Time: 04/17/2023 10:08 am

BCD0119

(Continued)

Matrix: Water

Prepared using: PFAS - EPA 1633

Analyses	Spiking Solution(s)	Surrogate Solution(s)
1633	23C0549 PFAS - MIX 1633 10ng/mL	23C0277 MPFAC-HIF-ES 20.0ng/mL

23D0043-01RE1	AF-RHMW225401-WGN01B-2304W1	04/13/2023	05/03/2023	4/10/2023	8:18:00AM	543.66	2		200	"Report relevant surrogates"
23D0043-02	AF-HDMW225303-WGN01LF-2304W1	04/13/2023	05/02/2023	4/10/2023	8:18:00AM	521.29	2		200	"Report relevant surrogates"
23D0043-02RE1	AF-HDMW225303-WGN01LF-2304W1	04/13/2023	05/02/2023	4/10/2023	8:18:00AM	521.29	2		200	"Report relevant surrogates"
23D0043-03	AF-RHMW10-WGN01LF-2304W1	04/13/2023	05/02/2023	4/10/2023	8:18:00AM	523.27	2		200	"Report relevant surrogates"
23D0043-03RE1	AF-RHMW10-WGN01LF-2304W1	04/13/2023	05/02/2023	4/10/2023	8:18:00AM	523.27	2		200	"Report relevant surrogates"
23D0043-04	AF-RHMW10-WGFD01LF-2304W1	04/13/2023	05/02/2023	4/10/2023	8:18:00AM	544.2	2		200	"Report relevant surrogates"
23D0043-04RE1	AF-RHMW10-WGFD01LF-2304W1	04/13/2023	05/02/2023	4/10/2023	8:18:00AM	544.2	2		200	"Report relevant surrogates"
23D0053-03	Central Final	04/18/2023	04/11/2023	4/10/2023	8:18:00AM	495.19	2		200	
23D0053-03RE1	Central Final	04/18/2023	04/11/2023	4/10/2023	8:18:00AM	495.19	2		200	Added 4/14/2023 by DAG
23D0056-01	AF-RHMW03-WGN01LF-2304W1	04/14/2023	05/04/2023	4/10/2023	8:18:00AM	565.66	2		200	"Report relevant surrogates"
23D0056-01RE1	AF-RHMW03-WGN01LF-2304W1	04/14/2023	05/04/2023	4/10/2023	8:18:00AM	565.66	2		200	"Report relevant surrogates"
23D0056-02	AF-RHMW02-WGN01LF-2304W1	04/14/2023	05/04/2023	4/10/2023	8:18:00AM	571	2		200	"Report relevant surrogates"
23D0056-02RE1	AF-RHMW02-WGN01LF-2304W1	04/14/2023	05/04/2023	4/10/2023	8:18:00AM	571	2		200	"Report relevant surrogates"
23D0060-02	WC Res Bkgd #2	04/18/2023	04/12/2023	4/10/2023	8:18:00AM	489.13	2		200	
23D0060-02RE1	WC Res Bkgd #2	04/18/2023	04/12/2023	4/10/2023	8:18:00AM	489.13	2		200	Added 4/14/2023 by DAG
23D0060-10	Alsco	04/18/2023	04/13/2023	4/10/2023	8:18:00AM	492.86	2		200	used two cartridges
23D0060-10RE1	Alsco	04/18/2023	04/13/2023	4/10/2023	8:18:00AM	492.86	2		200	Added 4/14/2023 by DAG
BCD0119-BLK1	Blank			4/10/2023	8:18:00AM	500	2	0	200	
BCD0119-BS1	LCS			4/10/2023	8:18:00AM	500	2	200	200	
BCD0119-MRL1	MRL Check			4/10/2023	8:18:00AM	500	2	20	200	
BCD0119-MS1	Matrix Spike [23C0279-01]			4/10/2023	8:18:00AM	525.72	2	200	200	6.5mL soil left
BCD0119-MSD1	Matrix Spike Dup [23C0279-01]			4/10/2023	8:18:00AM	521.68	2	200	200	33mL soil left

piking Witnessed By _____ Date _____ Preparation Reviewed By _____ Date _____ Extracts Received By _____ Date _____

Table of Contents

PREPARATION BENCH SHEET
Organics

Print Date/Time: 04/17/2023 10:08 am

BCD0119

(Continued)

Matrix: Water

Prepared using: PFAS - EPA 1633

Analyses
1633

Spiking Solution(s)

23C0549	PFAS - MIX 1633 10ng/mL

Surrogate Solution(s)

23C0277	MPFAC-HIF-ES 20.0ng/mL

Start Date/Time _____

StopDate/Time _____

Reagents

Standard	Description	LotNum
22C0296	Envi-carb	122395
23B0607	Am. Ac. preservative	*
23C0006	Reagent - 0.05MFA wash	x
23D0065	Reagent -0.3M Formic Acid	M13H051
23D0244	Reagent - 1.0% Ammonia Hydroxide	219481

Batch Comments:
Spiked by:LYA 4/10/23 11:00AM
Witness: PAF
Balance #: EB2
Cartridge: aligent
Concentration: 4/13/23 9:31-11:30

Spiking Witnessed By _____ Date _____

Preparation Reviewed By _____ Date _____

Extracts Received By _____ Date _____

Table of Contents

INJECTION LOG - ANALYSIS SEQUENCE SUMMARY

EPA 1633

Laboratory:	APPL, LLC	SDG:	
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Sequence:	SC01442	Instrument:	Saphira
Calibration:	2315014		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	SC01442-CAL1	S2023-04-12A (1)	04/12/23 10:12
Cal Standard	SC01442-CAL2	S2023-04-12A (2)	04/12/23 10:25
Cal Standard	SC01442-CAL3	S2023-04-12A (3)	04/12/23 10:38
Cal Standard	SC01442-CAL4	S2023-04-12A (4)	04/12/23 10:51
Cal Standard	SC01442-CAL5	S2023-04-12A (5)	04/12/23 11:04
Cal Standard	SC01442-CAL6	S2023-04-12A (6)	04/12/23 11:16
Cal Standard	SC01442-CAL7	S2023-04-12A (7)	04/12/23 11:29
Cal Standard	SC01442-CAL8	S2023-04-12A (8)	04/12/23 11:42
Initial Cal Blank	SC01442-ICB1	S2023-04-12A (9)	04/12/23 11:55
Secondary Cal Check	SC01442-SCV1	S2023-04-12A (10)	04/12/23 12:08

INJECTION LOG - ANALYSIS SEQUENCE SUMMARY

EPA 1633

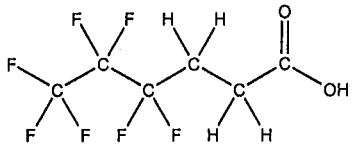
Laboratory:	APPL, LLC	SDG:	
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Sequence:	SC01502	Instrument:	Saphira
Calibration:	2315014		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Blank	SC01502-CCB1	S2023-04-14A (1)	04/14/23 14:29
Low Cal Check	SC01502-LCV1	S2023-04-14A (2)	04/14/23 14:42
Calibration Check	SC01502-CCV1	S2023-04-14A (3)	04/14/23 14:55
Performance Mix	SC01502-PEM1	S2023-04-14A (4)	04/14/23 15:08
Performance Mix	SC01502-PEM2	S2023-04-14A (5)	04/14/23 15:21
Calibration Blank	SC01502-CCB2	S2023-04-14A (6)	04/14/23 15:34
Blank	BCD0119-BLK1	S2023-04-14A (7)	04/14/23 15:47
LCS	BCD0119-BS1	S2023-04-14A (8)	04/14/23 16:00
MRL Check	BCD0119-MRL1	S2023-04-14A (9)	04/14/23 16:12
Calibration Check	SC01502-CCV2	S2023-04-14A (32)	04/14/23 21:09
Calibration Blank	SC01502-CCB3	S2023-04-14A (33)	04/14/23 21:22
AF-RHMW225401-WGN01B-2304W1	23D0043-01	S2023-04-14A (34)	04/14/23 21:34
AF-HDMW225303-WGN01LF-2304W1	23D0043-02	S2023-04-14A (36)	04/14/23 22:00
AF-RHMW10-WGN01LF-2304W1	23D0043-03	S2023-04-14A (38)	04/14/23 22:26
AF-RHMW10-WGFD01LF-2304W1	23D0043-04	S2023-04-14A (40)	04/14/23 22:52
Calibration Check	SC01502-CCV3	S2023-04-14A (52)	04/15/23 01:26
Calibration Blank	SC01502-CCB4	S2023-04-14A (53)	04/15/23 01:39

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	FPrPA	**LOT NUMBER:**	FPrPA1020
COMPOUND:	3-Perfluoropropyl propanoic acid		
STRUCTURE:		**CAS #:**	356-02-5



MOLECULAR FORMULA:	$C_6H_5F_7O_2$	**MOLECULAR WEIGHT:**	242.09
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	11/12/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/12/2025		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/27/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

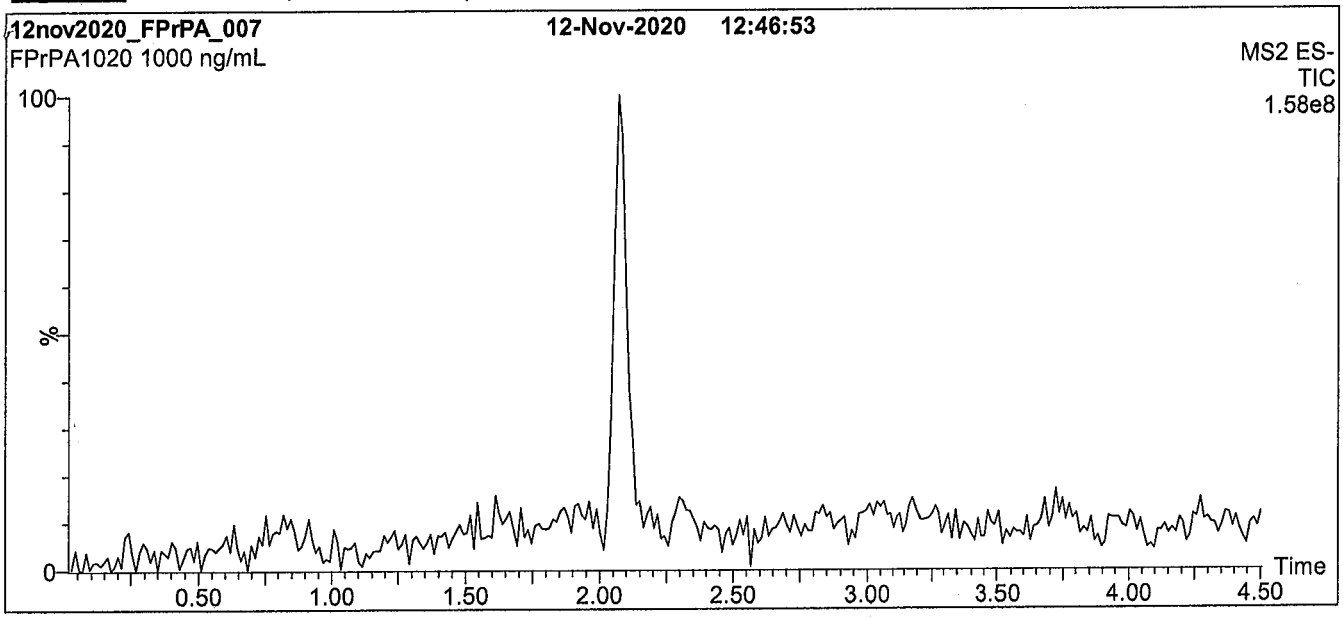
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

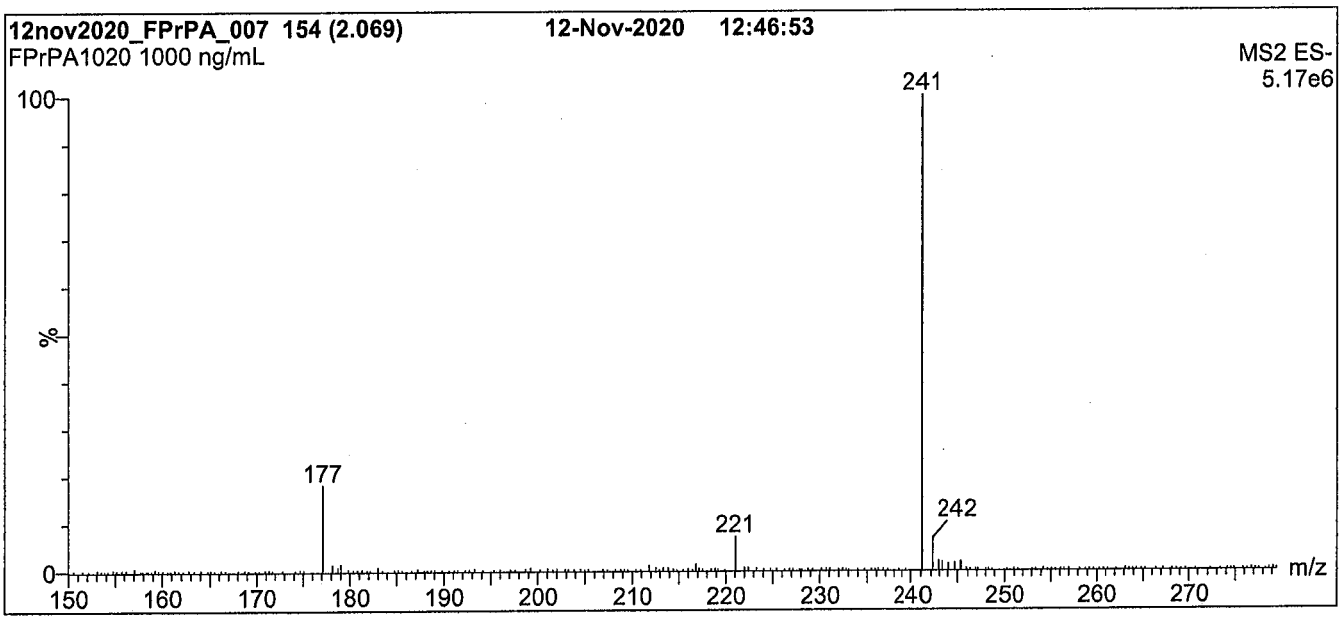
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **FPrPA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% H_2O / 40% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

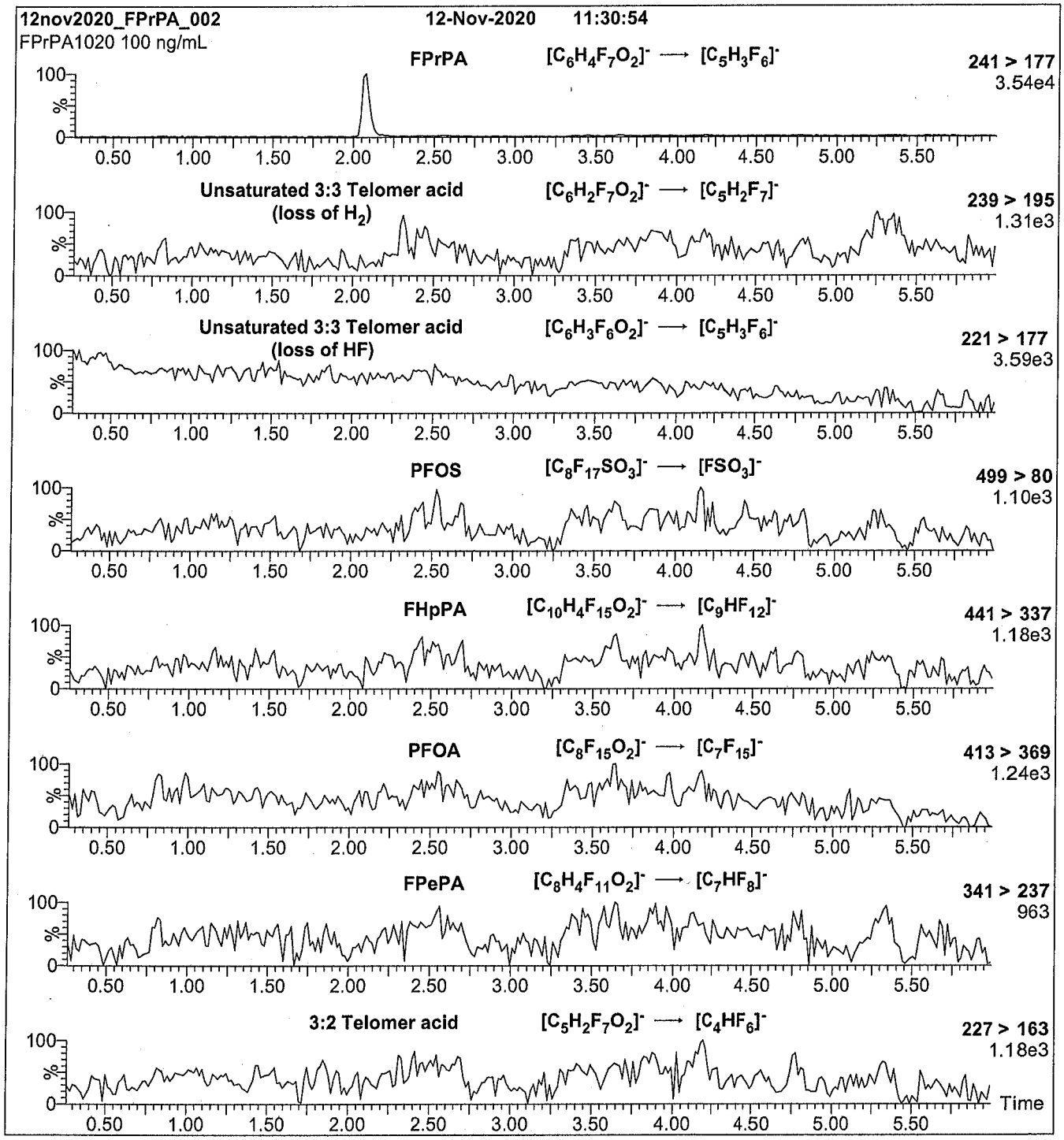
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 18.50
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **FPrPA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (FPrPA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.49e-3
Collision Energy (eV) = 10

Analytical Standard Record

21L0004

Description:	PFAS - SAS 3:3FTA 50ug/mL	Expires:	06/05/2022
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Hart Hedgpeth
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 16:03 by HGH
Comments:	3:3 FTCA 50.0ug/mL		

Analyte	Parent	CAS Number	Concentration	Units
3:3 FTA		113507-82-7	50	ug/mL

WELLINGTON LABORATORIES

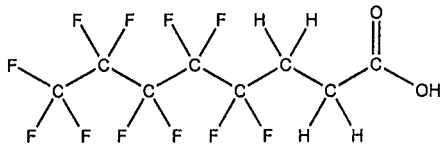
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FPePA
COMPOUND: 3-Perfluoropentyl propanoic acid

LOT NUMBER: FPePA1120

STRUCTURE:

CAS #: 914637-49-3



MOLECULAR FORMULA:	$C_8H_5F_{11}O_2$	**MOLECULAR WEIGHT:**	342.11
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	11/11/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/11/2025		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/27/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

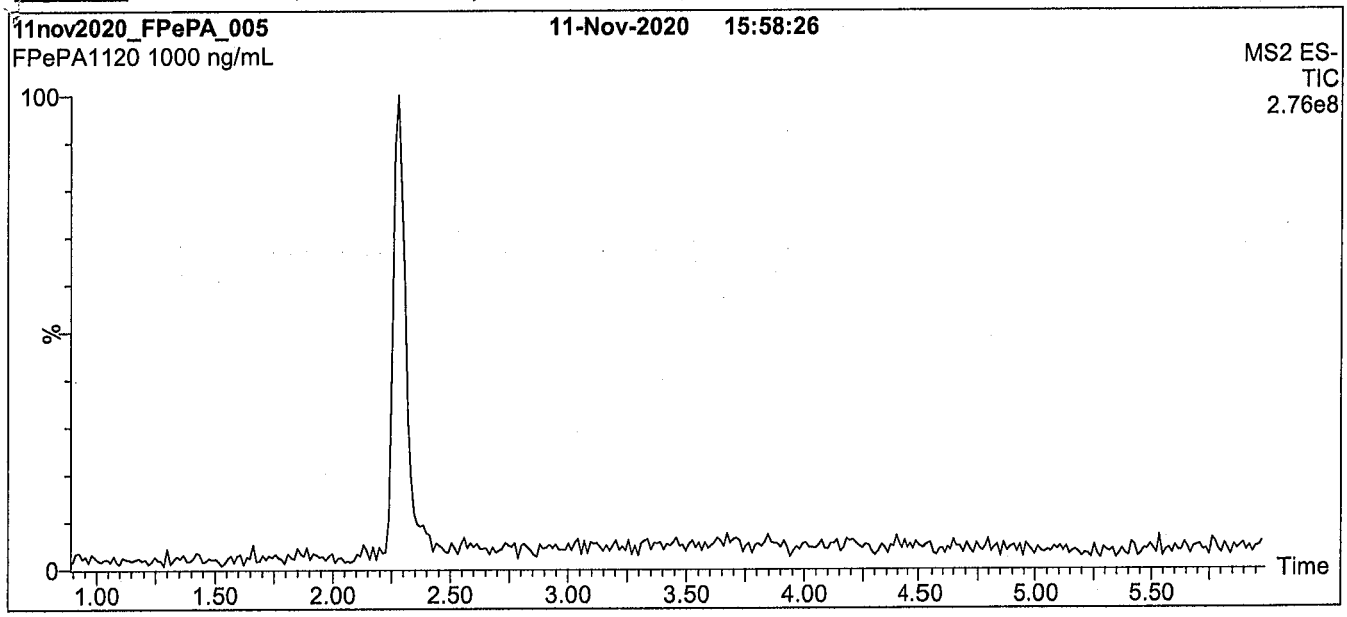
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

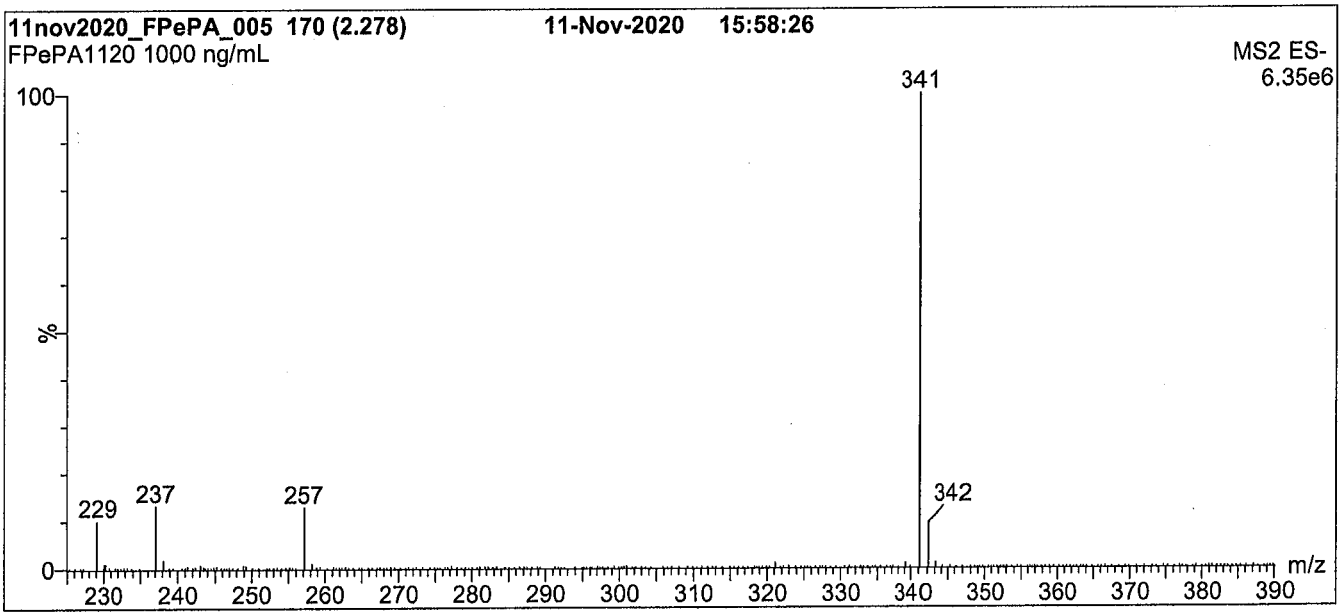
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **FPePA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

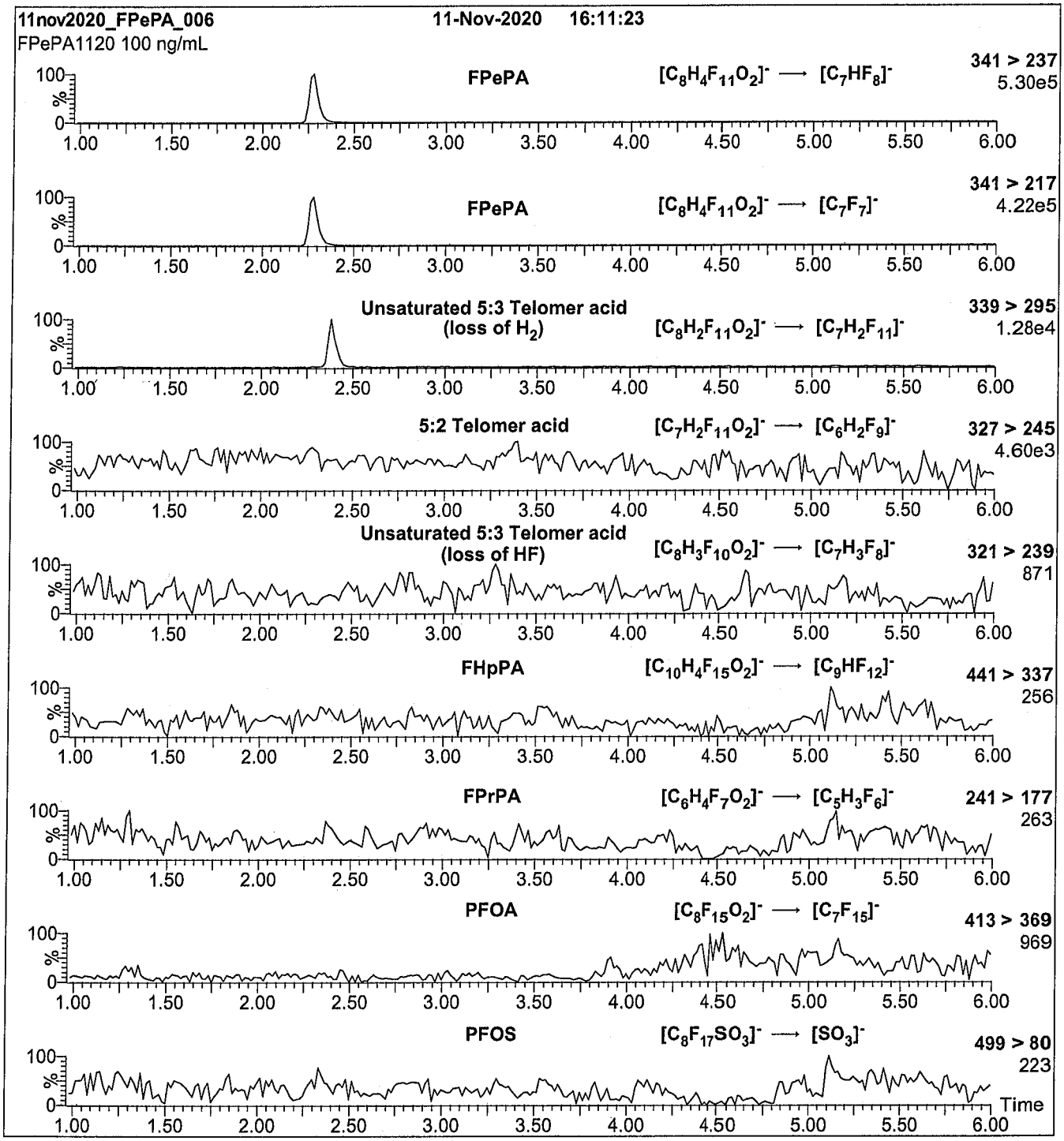
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 18.50
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **FPePA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (FPePA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 10

Analytical Standard Record

21L0005

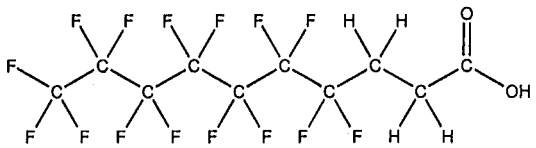
Description:	PFAS - SAS 5:3FTA 50ug/mL	Expires:	06/05/2022
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Hart Hedgpeth
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 16:03 by HGH
Comments:	5:3 FTCA 50.0ug/mL		

Analyte	Parent	CAS Number	Concentration	Units
5:3 FTA		914637-49-3	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	FHpPA	**LOT NUMBER:**	FHpPA1020
COMPOUND:	3-Perfluoroheptyl propanoic acid		
STRUCTURE:		**CAS #:**	812-70-4



MOLECULAR FORMULA:	$C_{10}H_5F_{15}O_2$	**MOLECULAR WEIGHT:**	442.12
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	11/12/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/12/2025		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/27/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

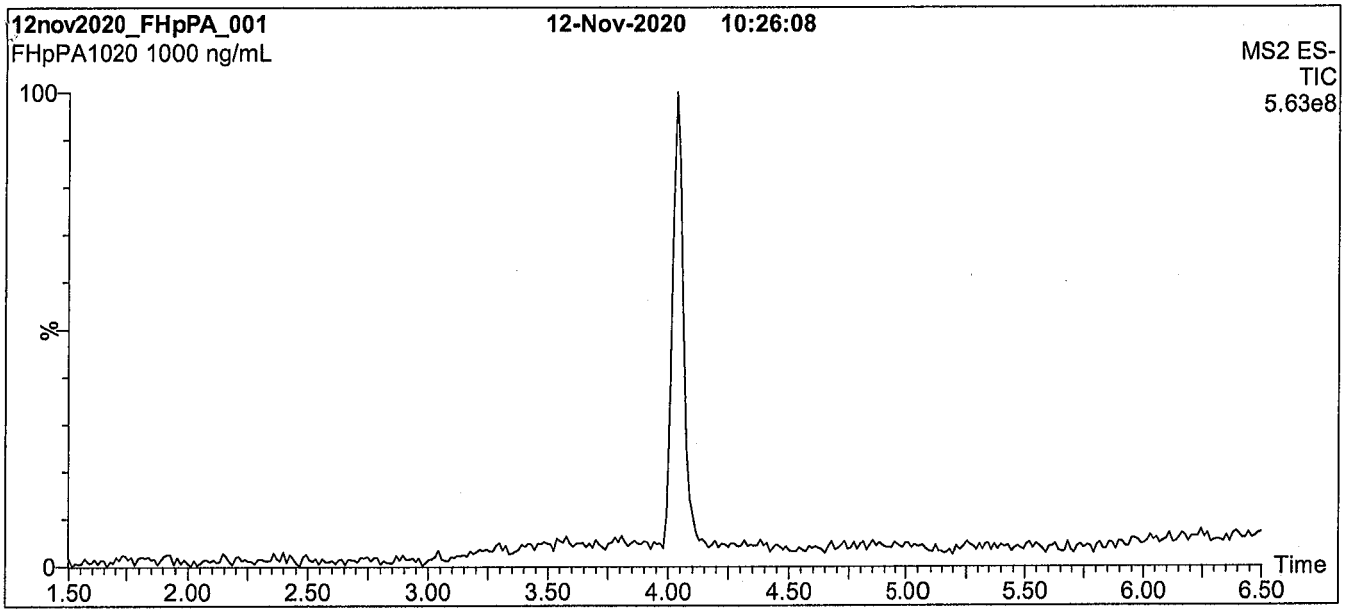
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

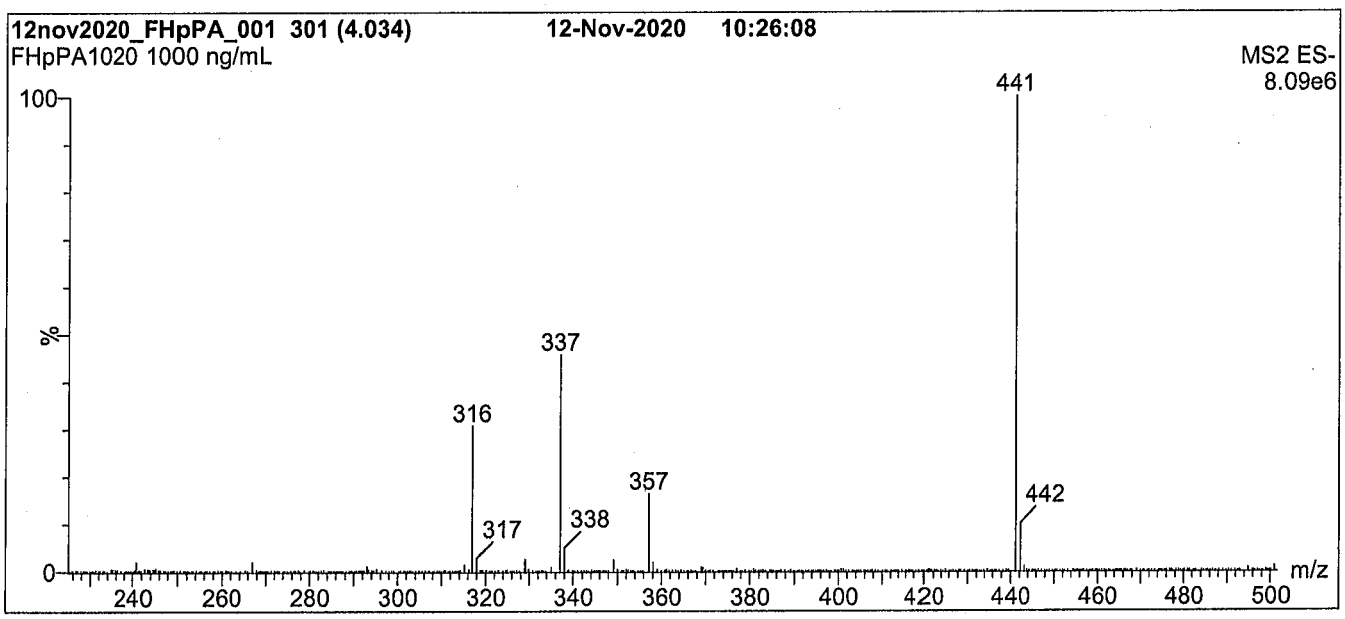
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **FHpPA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

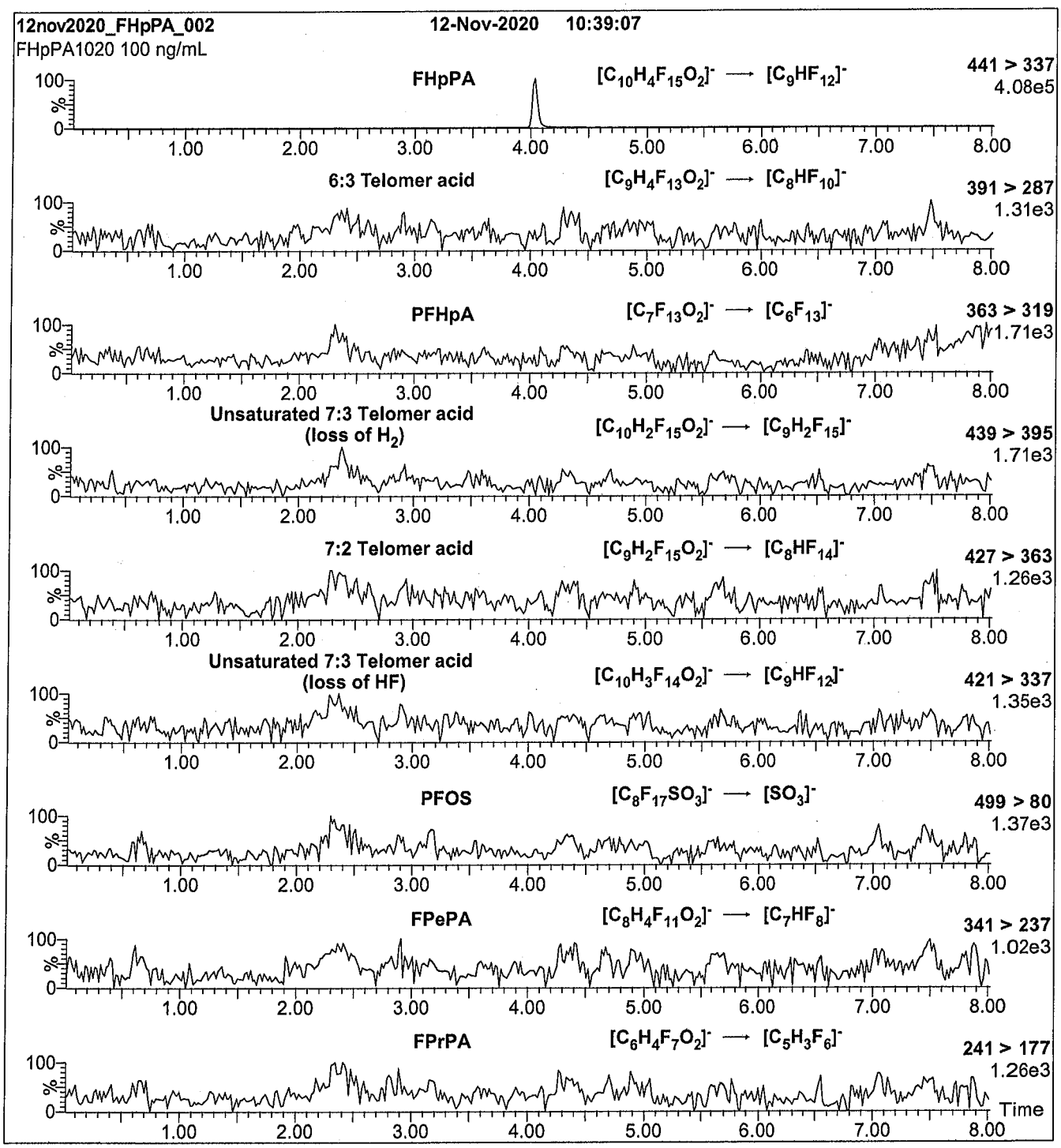
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **FHpPA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (FHpPA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.41e-3
Collision Energy (eV) = 8

Analytical Standard Record

21L0007

Description:	PFAS - SAS 7:3FTA 50ug/mL	Expires:	06/05/2022
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Hart Hedgpeth
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 16:16 by HGH
Comments:	7:3 FTCA 50.0ug/mL		

Analyte	Parent	CAS Number	Concentration	Units
7:3 FTA		812-70-4	50	ug/mL

WELLINGTON LABORATORIES

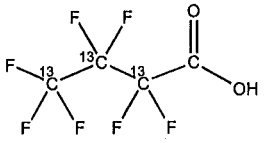
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFBA
COMPOUND: Perfluoro-n-(2,3,4-$^{13}C_3$)butanoic acid

LOT NUMBER: M3PFBA0721

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CHF_7O_2$	**MOLECULAR WEIGHT:**	217.02
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99%^{13}C (2,3,4-$^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	08/19/2021		
EXPIRY DATE: (mm/dd/yyyy)	08/19/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.2% of perfluoro-n-($^{13}C_3$)propanoic acid and also contains ~1.0% of perfluoro-n-(1,2,3,4-$^{13}C_4$)butanoic acid due to the naturally occurring isotopic abundance of ^{13}C in the unlabelled carbon atom.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/25/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

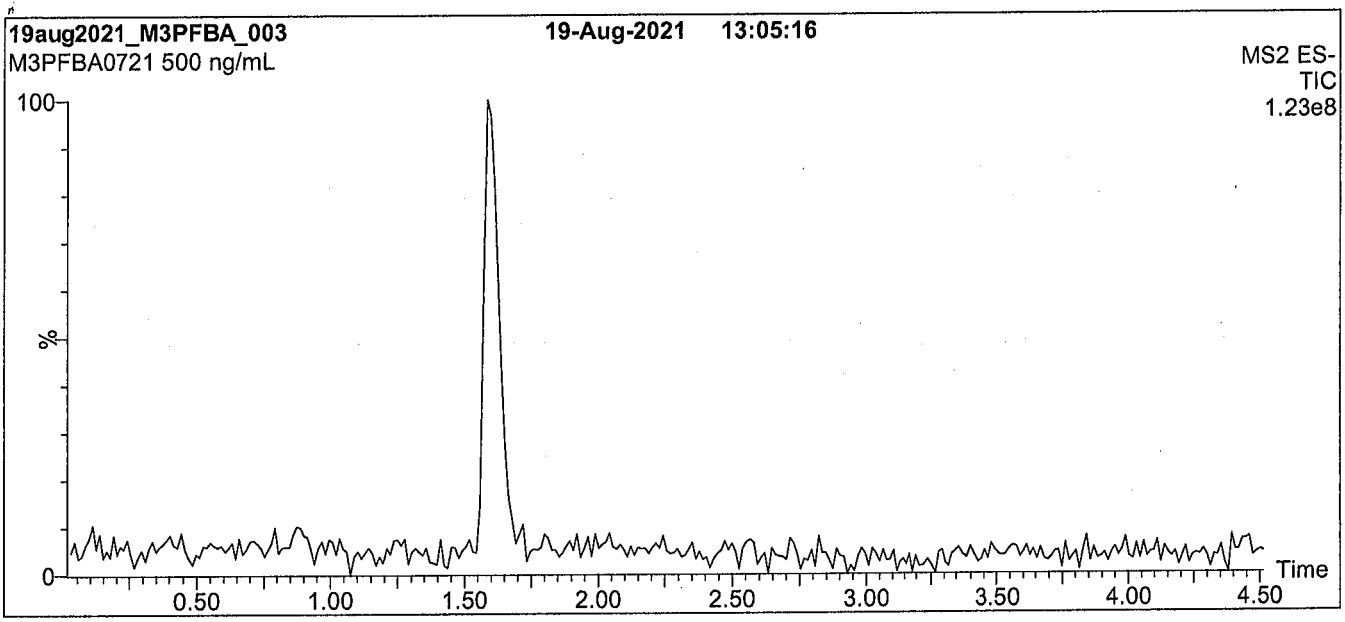
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

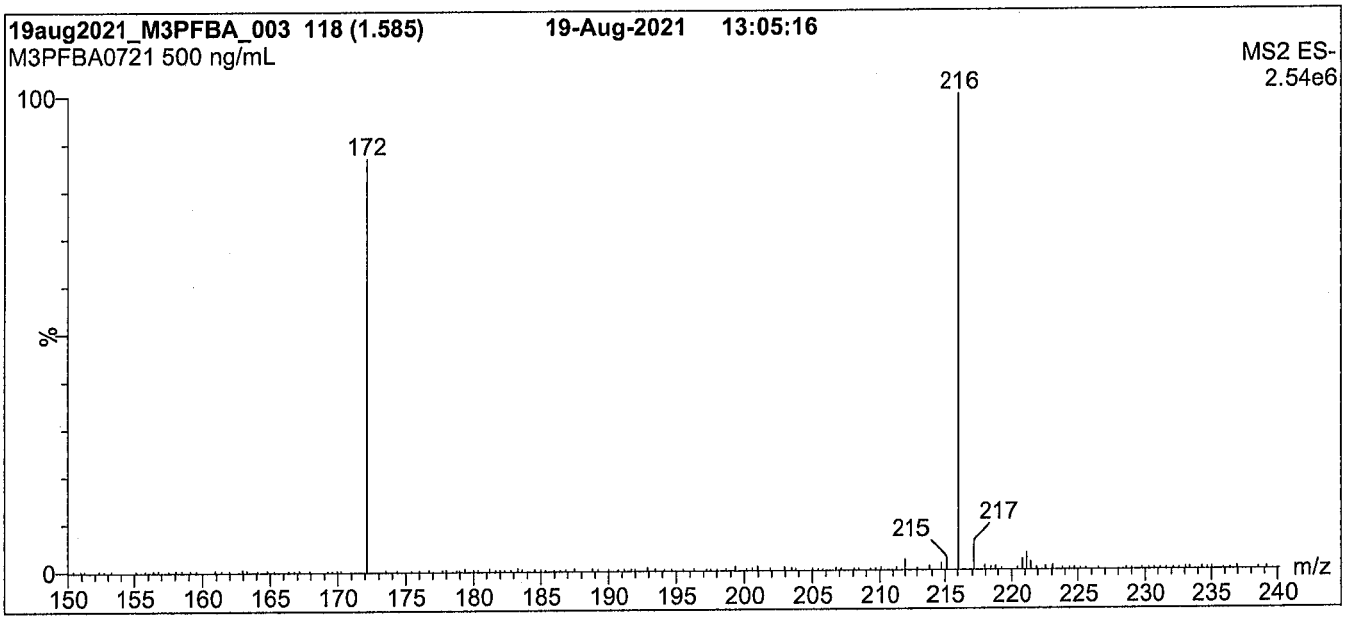
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **M3PFBA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% H_2O / 40% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 12 min

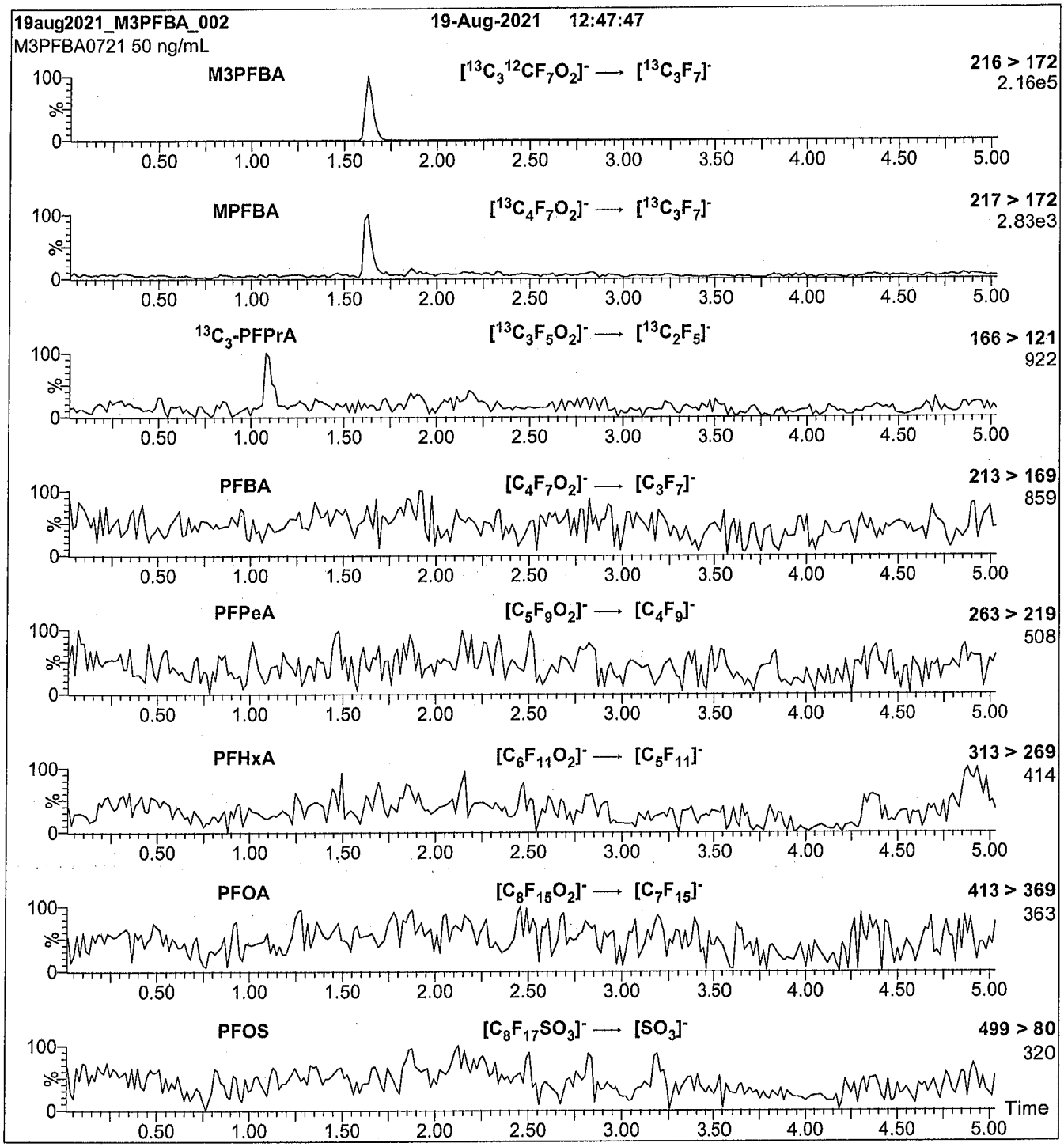
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **M3PFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M3PFBA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.45e-3
Collision Energy (eV) = 8

Analytical Standard Record

22A0116

Description:	PFAS - IIS M3PFBA 50ug/mL	Expires:	08/19/2026
Standard Type:	Analyte Spike	Prepared:	08/19/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C3-PFBA		13C3-PFBA	50	ug/mL

WELLINGTON LABORATORIES

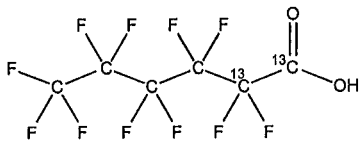
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFHxA
COMPOUND: Perfluoro-n-(1,2-$^{13}C_2$)hexanoic acid

LOT NUMBER: MPFHxA0921

STRUCTURE:

CAS #: 960315-47-3



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4HF_{11}O_2$	**MOLECULAR WEIGHT:**	316.04
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	10/04/2021		
EXPIRY DATE: (mm/dd/yyyy)	10/04/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/22/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

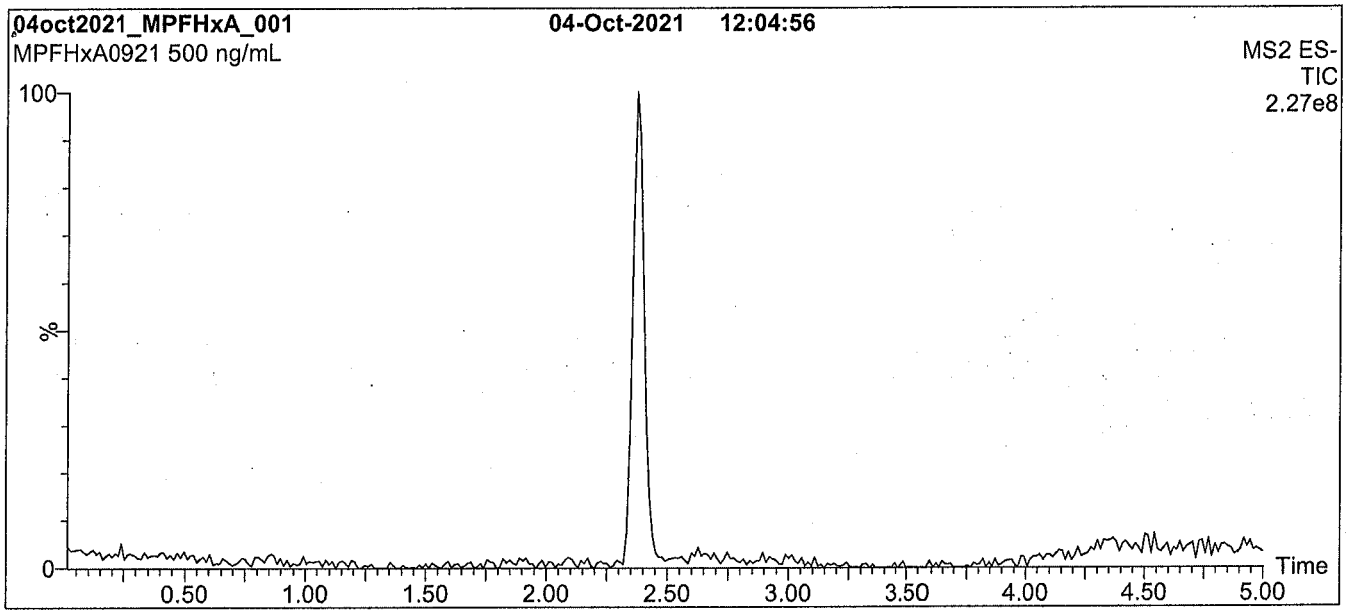
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

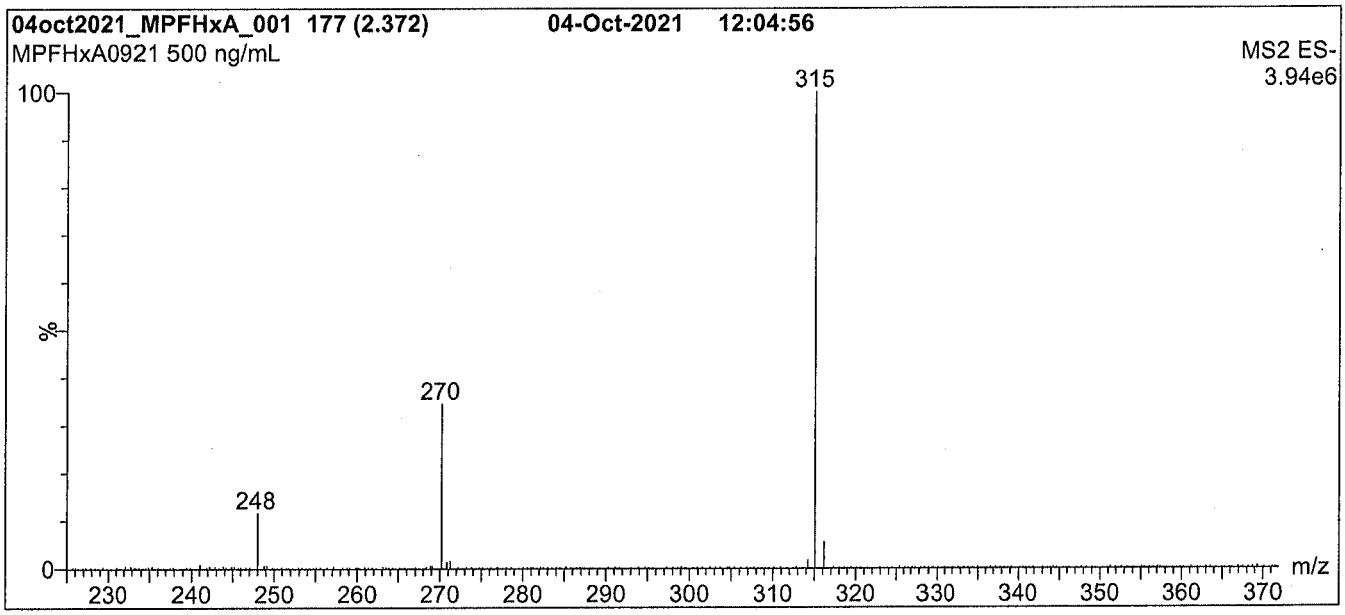
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFHxA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 1 min.
Time: 12 min

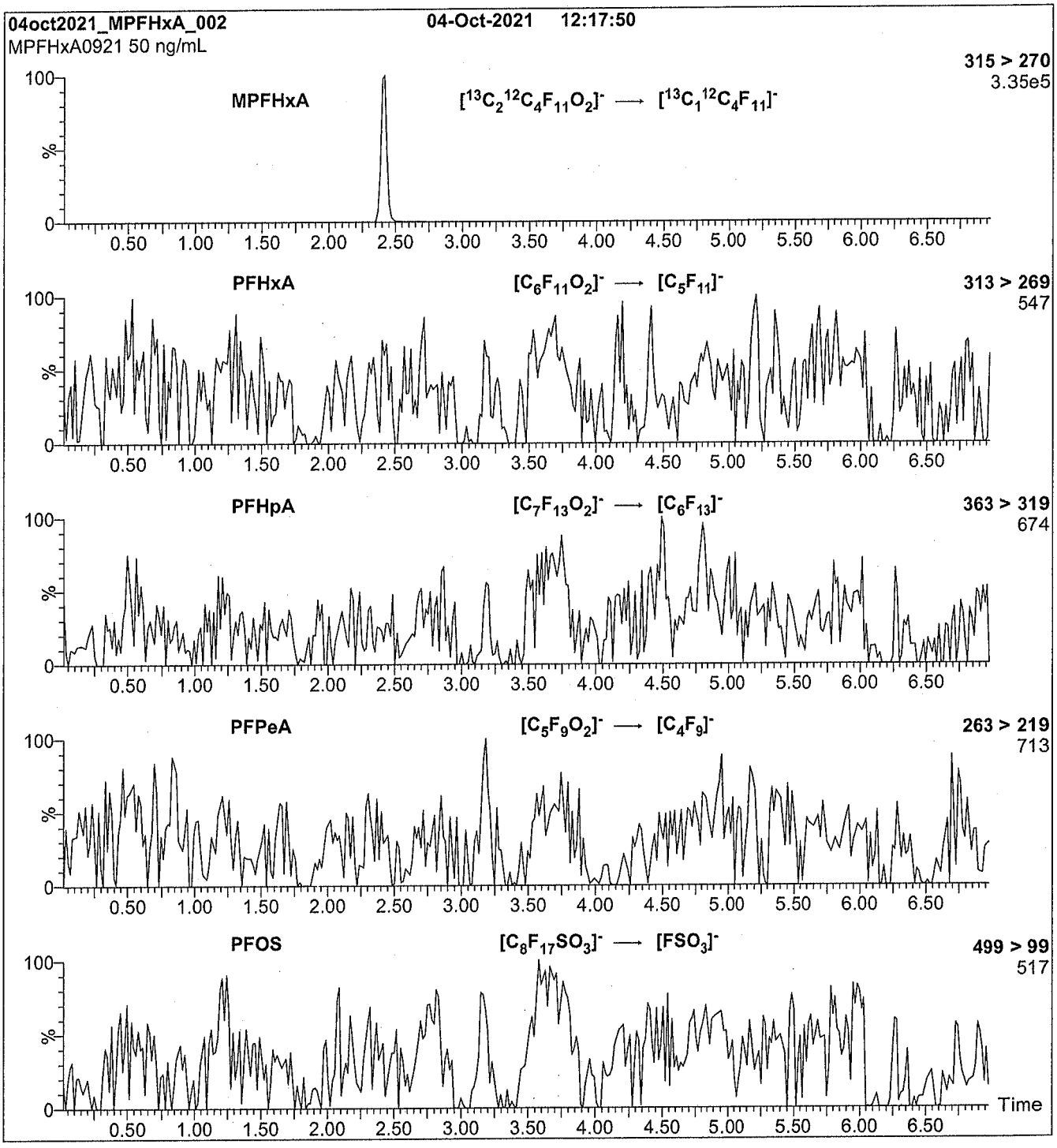
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFHxA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 8

Analytical Standard Record

22A0117

Description:	PFAS - IIS MPFHxA 50ug/mL	Expires:	10/04/2026
Standard Type:	Analyte Spike	Prepared:	10/04/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C2-PFHXA		13C2-PFHxA	50	ug/mL

Analytical Standard Record

22A0117

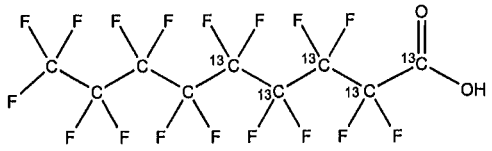
Description:	PFAS - IIS MPFHxA 50ug/mL	Expires:	10/04/2026
Standard Type:	Analyte Spike	Prepared:	10/04/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C2-PFHXA		13C2-PFHxA	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFNA
LOT NUMBER: MPFNA1021
COMPOUND: Perfluoro-n-(1,2,3,4,5-$^{13}C_5$)nonanoic acid
STRUCTURE:
CAS #: 960315-49-5



MOLECULAR FORMULA: $^{13}C_5{}^{12}C_4HF_{17}O_2$
MOLECULAR WEIGHT: 469.04
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
Water (<1%)
CHEMICAL PURITY: >98%
ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4,5-$^{13}C_5$)
LAST TESTED: (mm/dd/yyyy) 10/29/2021
EXPIRY DATE: (mm/dd/yyyy) 10/29/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/01/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

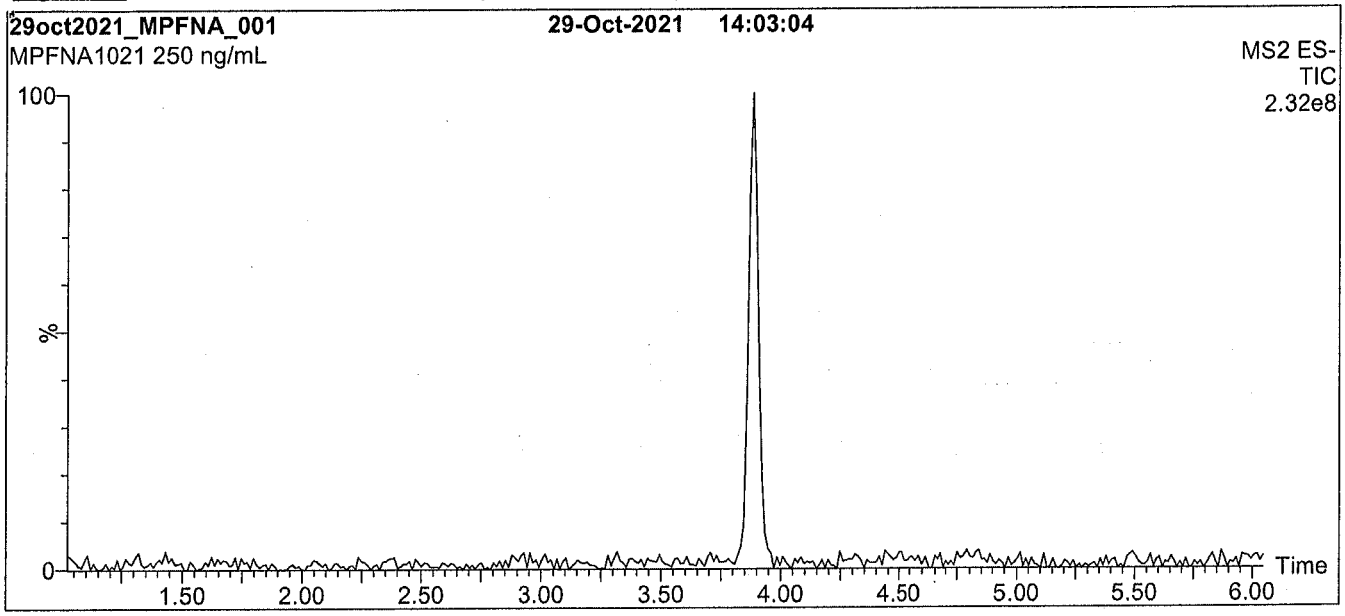
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

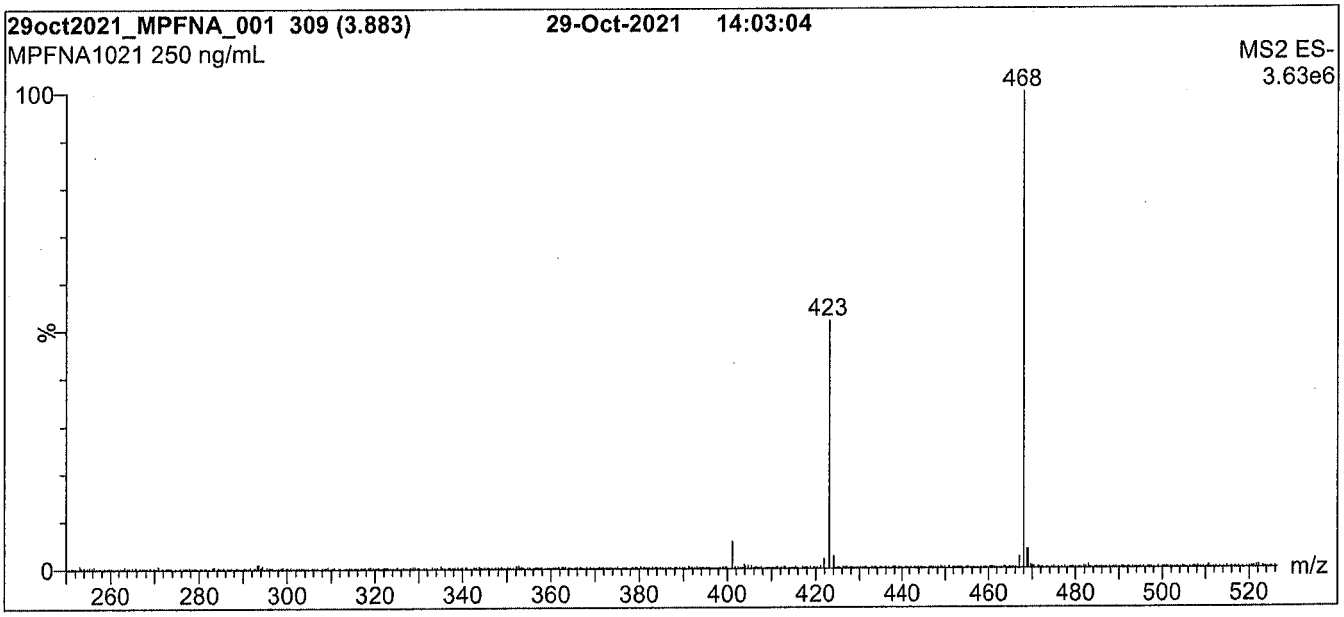
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFNA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

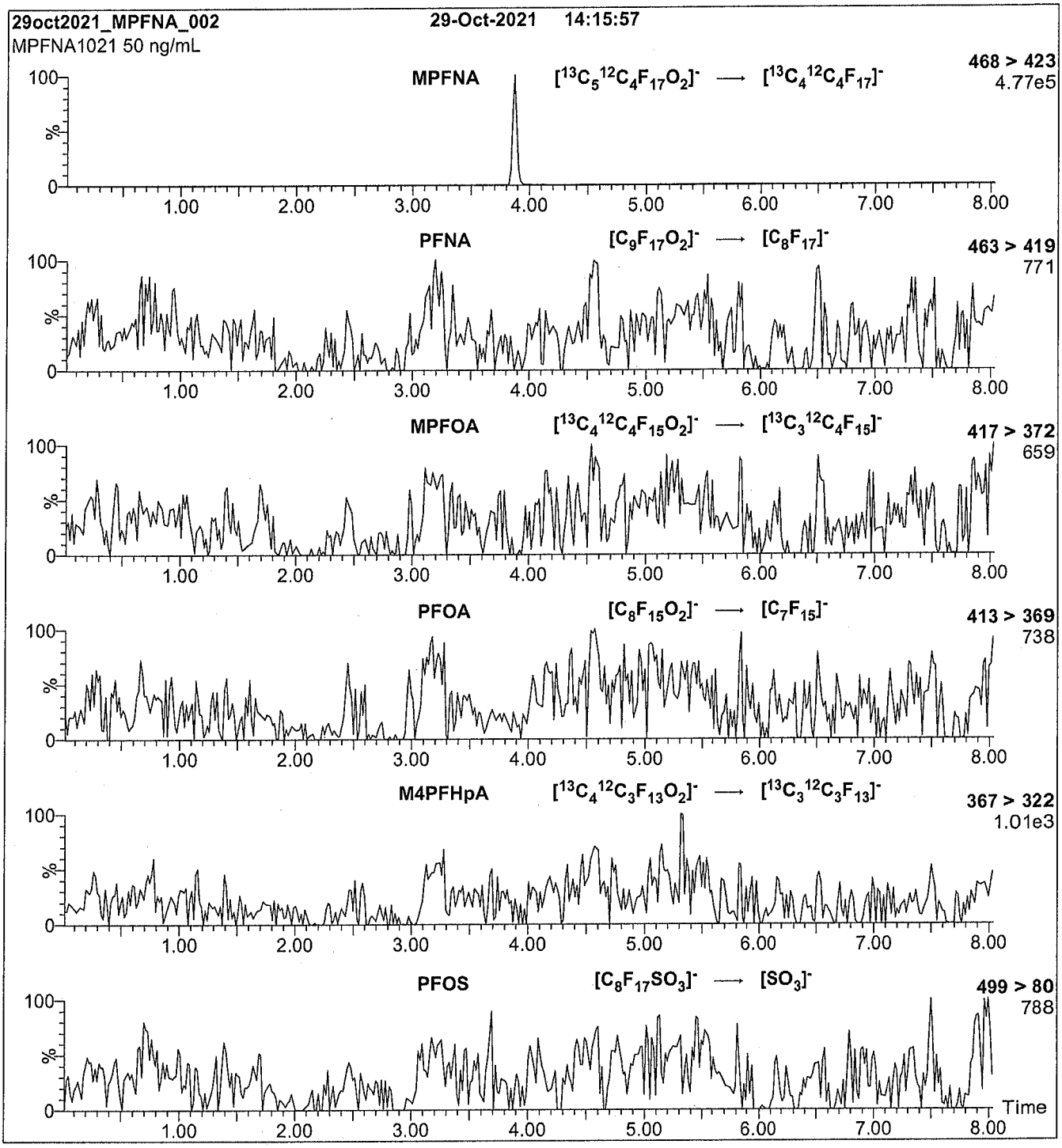
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFNA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.16e-3
Collision Energy (eV) = 10

Analytical Standard Record

22A0118

Description:	PFAS - IIS MPFNA 50ug/mL	Expires:	10/29/2026
Standard Type:	Analyte Spike	Prepared:	10/29/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C5-PFNA		13C5-PFNA	50	ug/mL

Analytical Standard Record

22A0118

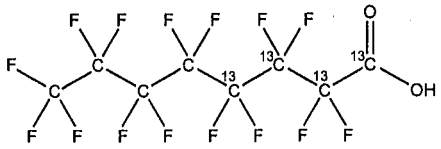
Description:	PFAS - IIS MPFNA 50ug/mL	Expires:	10/29/2026
Standard Type:	Analyte Spike	Prepared:	10/29/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C5-PFNA		13C5-PFNA	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFOA	**LOT NUMBER:**	MPFOA1121
COMPOUND:	Perfluoro-n-(1,2,3,4-$^{13}C_4$)octanoic acid		
STRUCTURE:		**CAS #:**	960315-48-4



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4HF_{15}O_2$	**MOLECULAR WEIGHT:**	418.04
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	12/07/2021		
EXPIRY DATE: (mm/dd/yyyy)	12/07/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/20/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

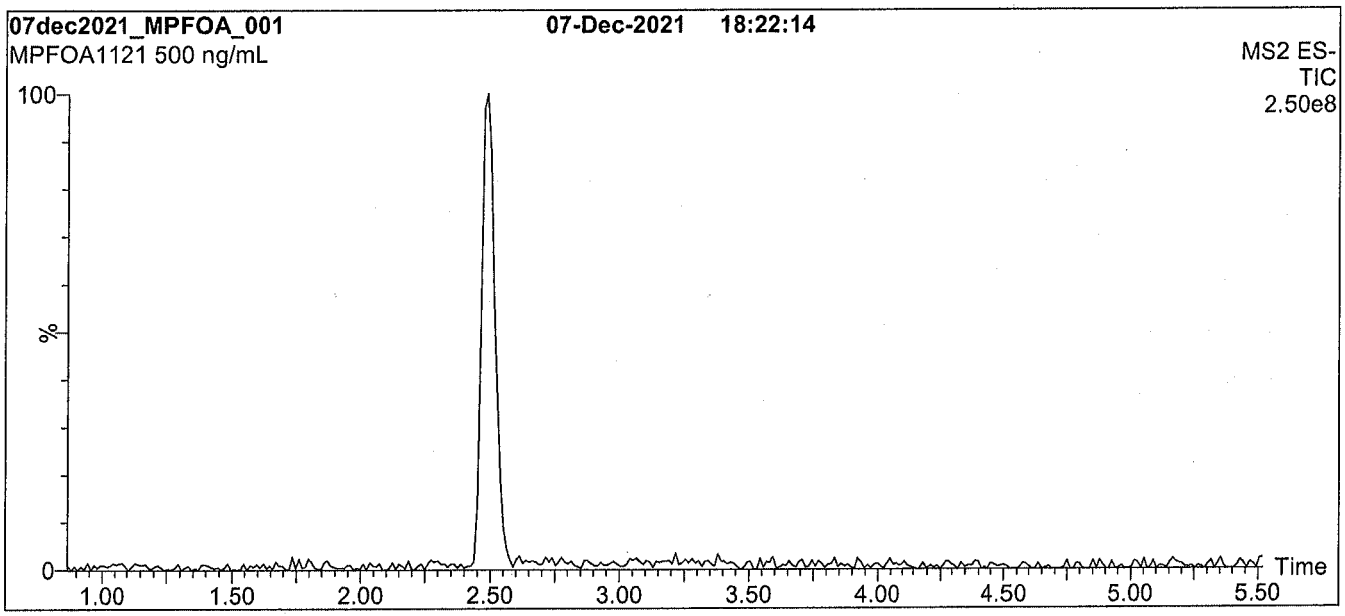
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

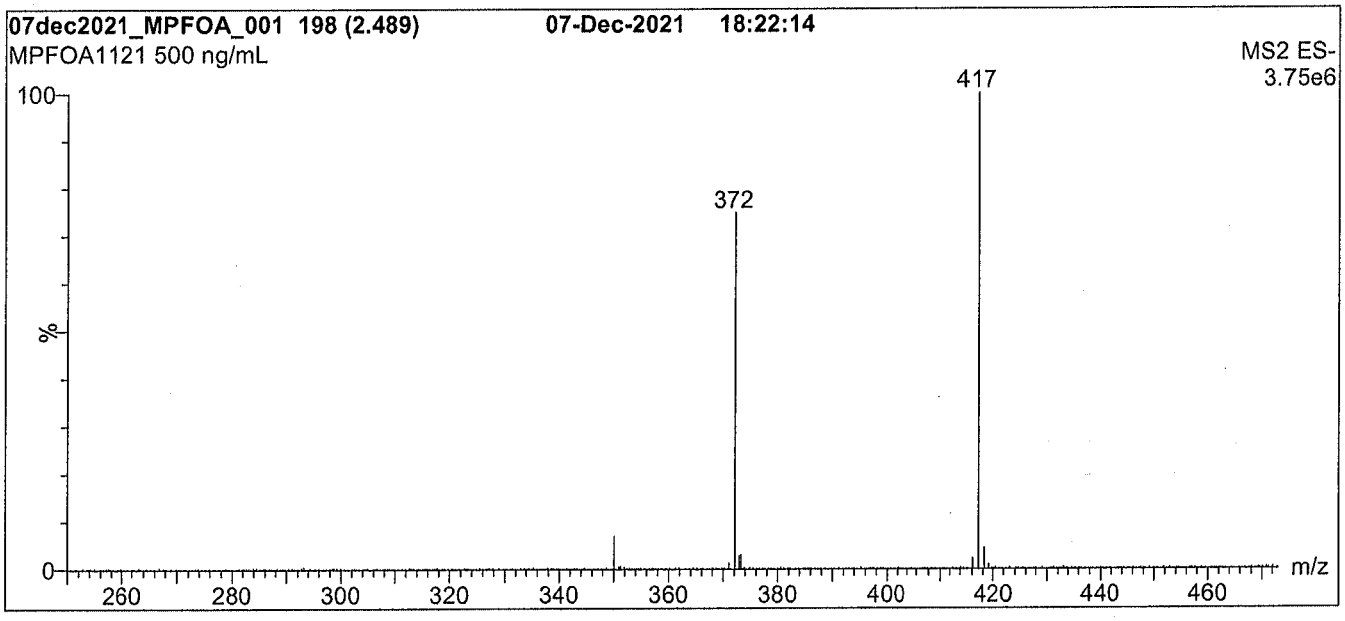
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFOA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

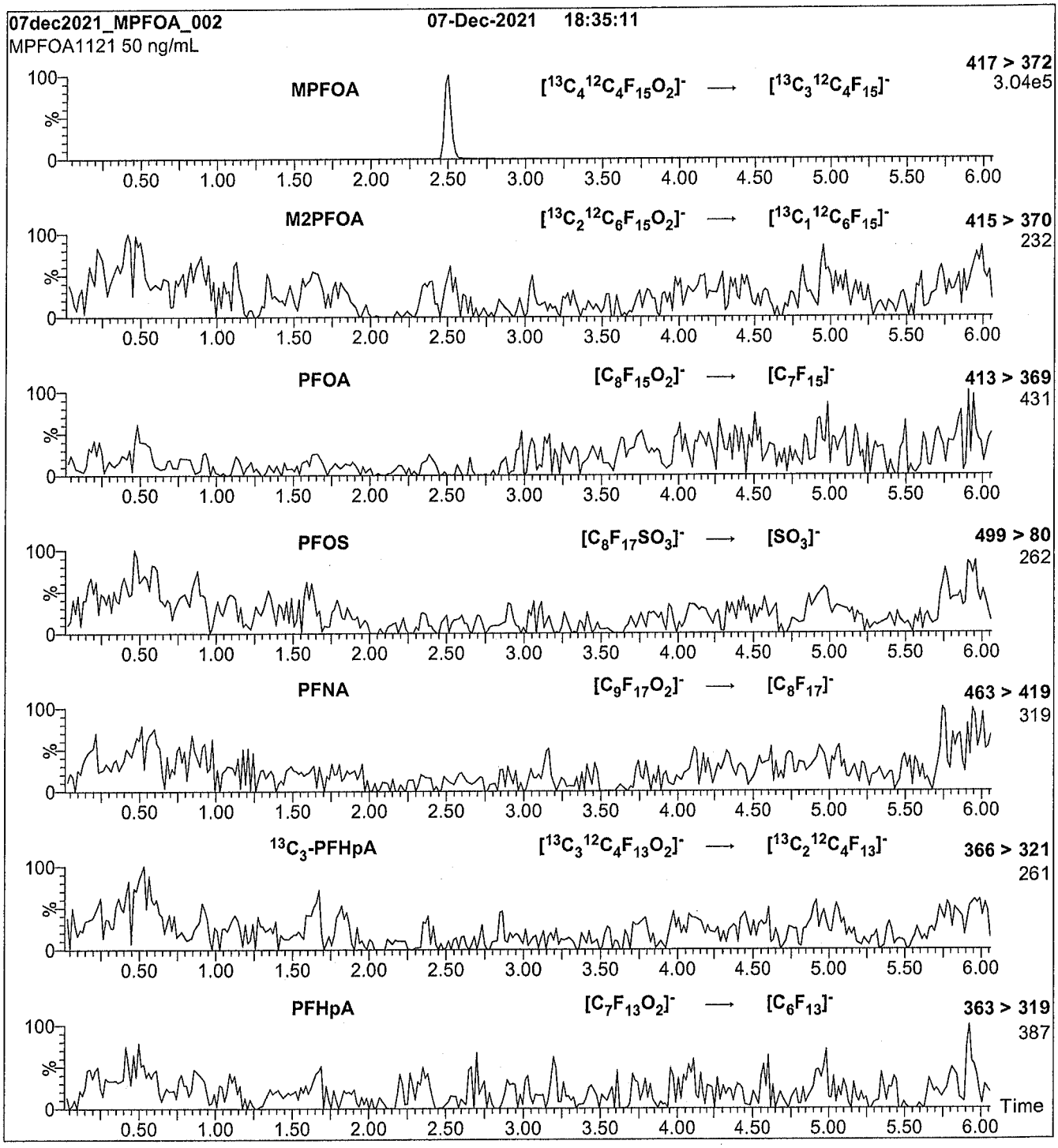
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFOA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 8

Analytical Standard Record

22A0119

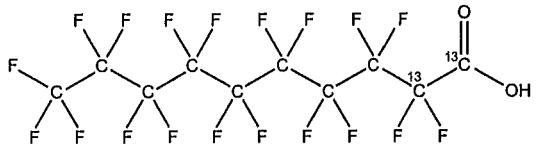
Description:	PFAS - IIS MPFOA 50ug/mL	Expires:	12/07/2026
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C4-PFOA		13C4-PFOA	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA1221
COMPOUND:	Perfluoro-n-(1,2-$^{13}C_2$)decanoic acid		
STRUCTURE:		**CAS #:**	960315-50-8



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8HF_{19}O_2$	**MOLECULAR WEIGHT:**	516.07
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	12/08/2021		
EXPIRY DATE: (mm/dd/yyyy)	12/08/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/13/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

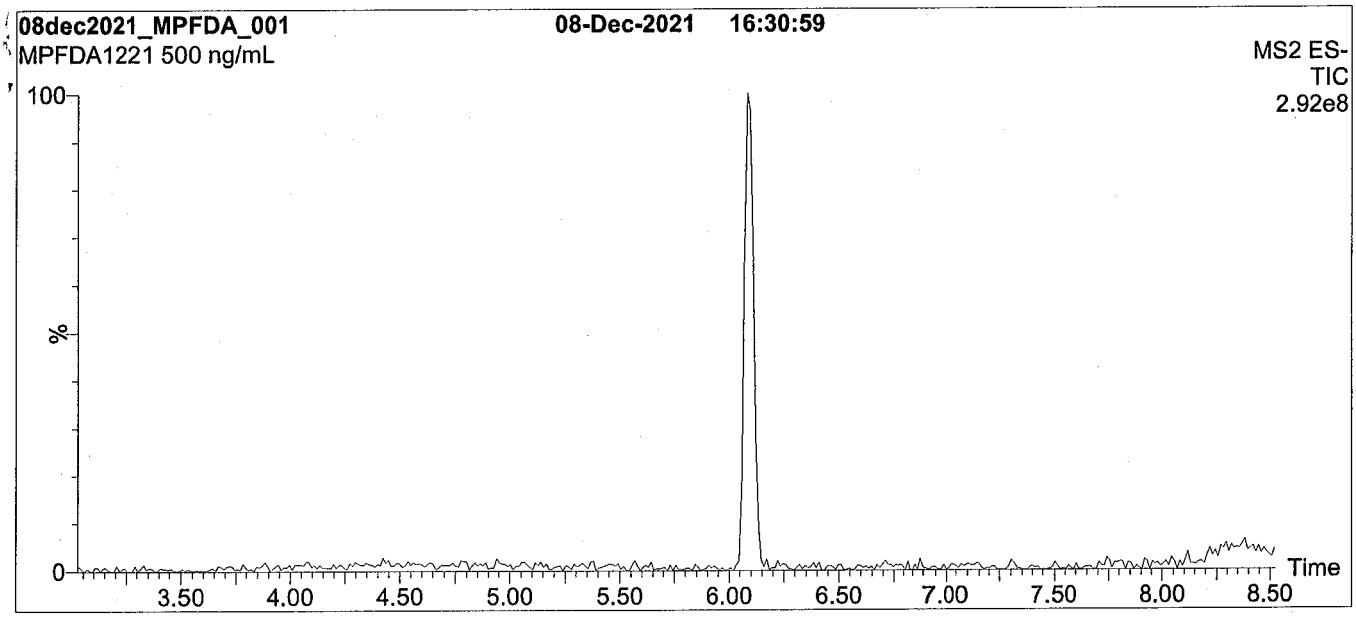
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

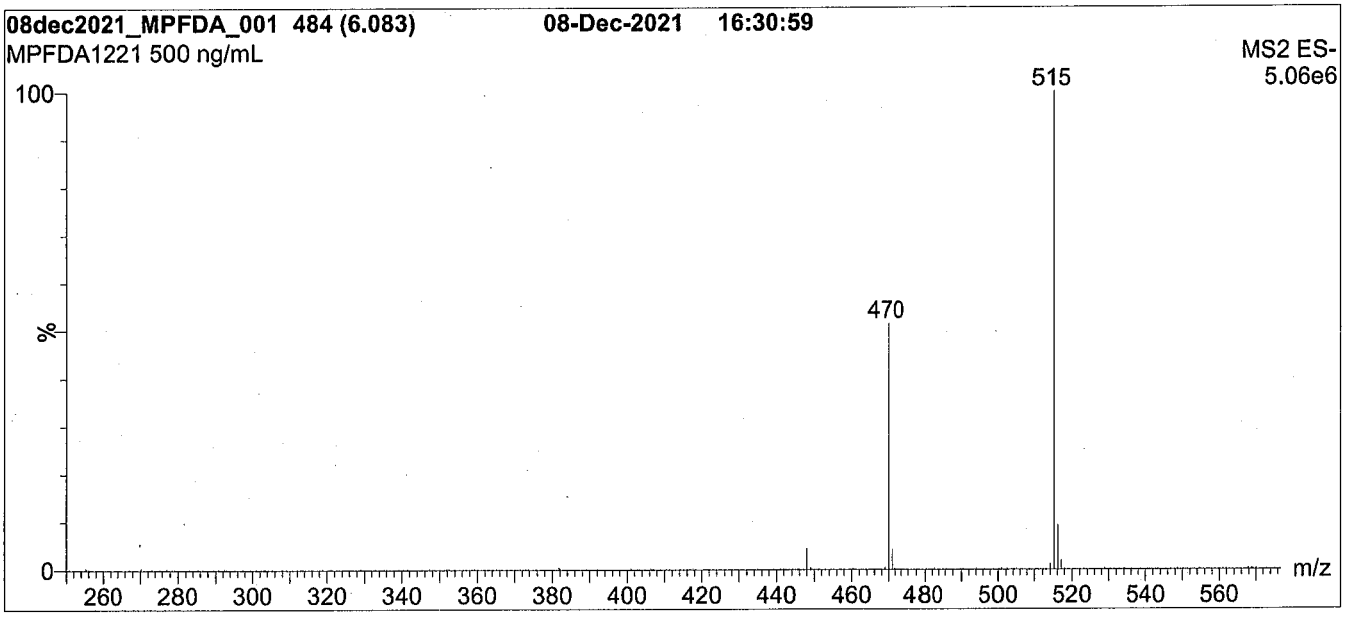
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFDA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 9 min and hold for
1 min before returning to initial conditions in 0.75 min.
Time: 12 min

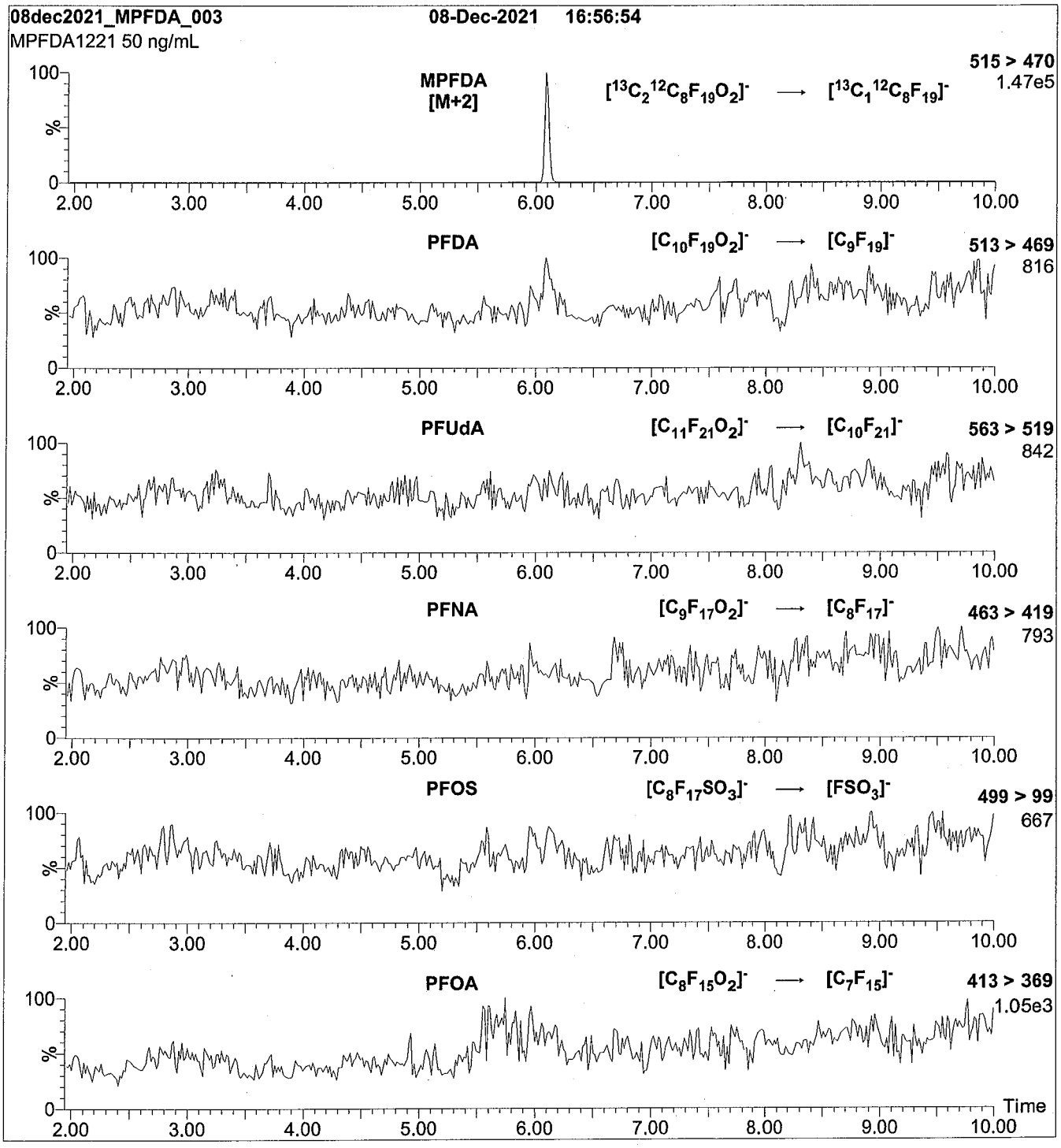
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFDA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 10

Analytical Standard Record

22A0120

Description:	PFAS - IIS MPFDA 50ug/mL	Expires:	12/08/2026
Standard Type:	Analyte Spike	Prepared:	12/08/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C2-PFDA		13C2-PFDA	50	ug/mL

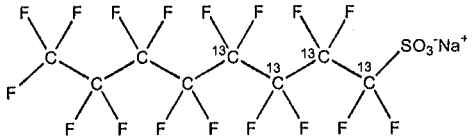
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS0821

COMPOUND: Sodium perfluoro-1-(1,2,3,4-$^{13}C_4$)octanesulfonate

STRUCTURE: **CAS #:** 960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	08/18/2021		
EXPIRY DATE: (mm/dd/yyyy)	08/18/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-($^{13}C_3$)heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/19/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

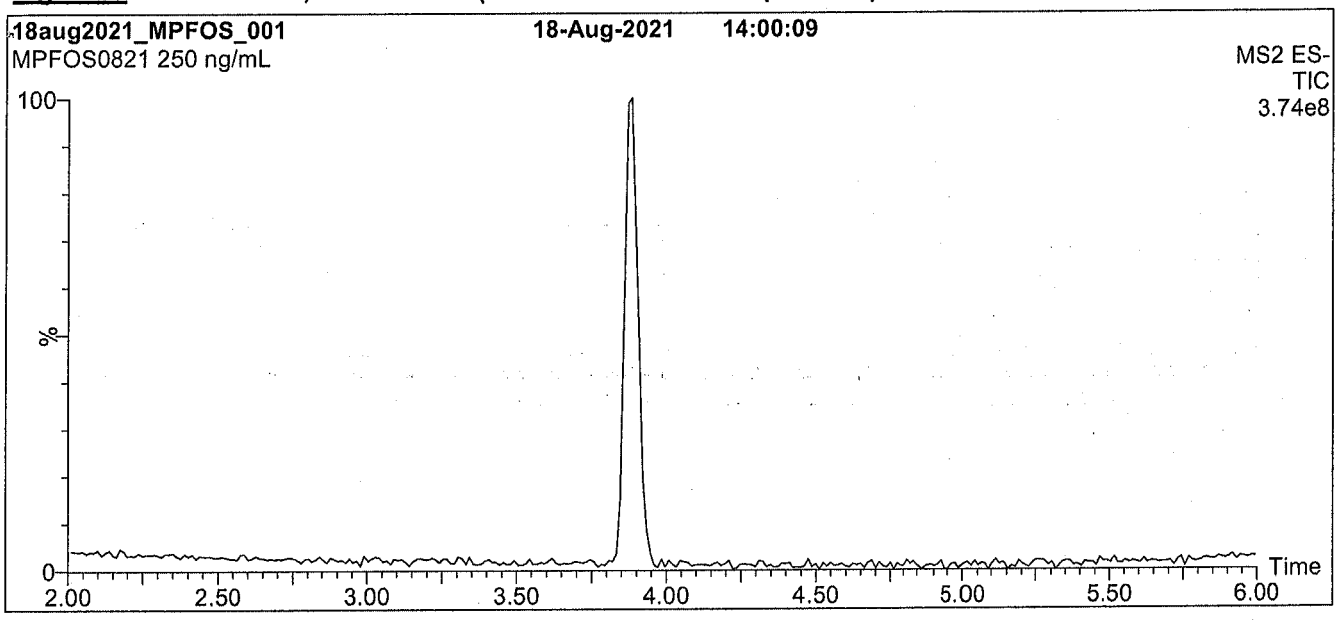
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

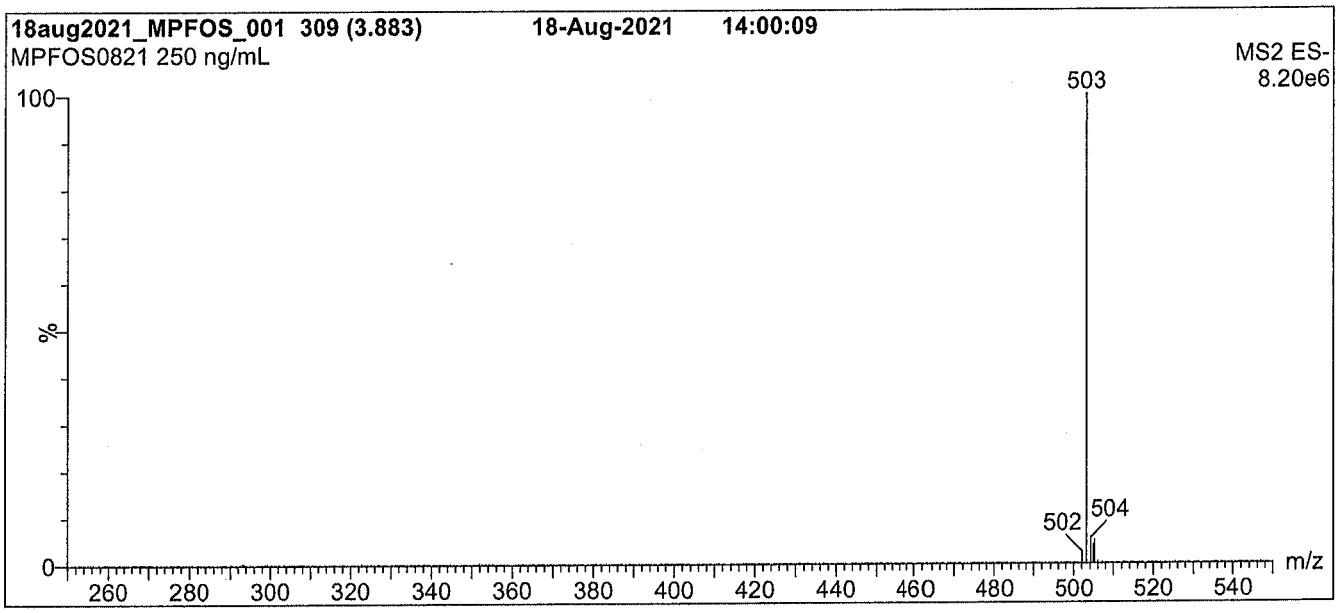
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFOS; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

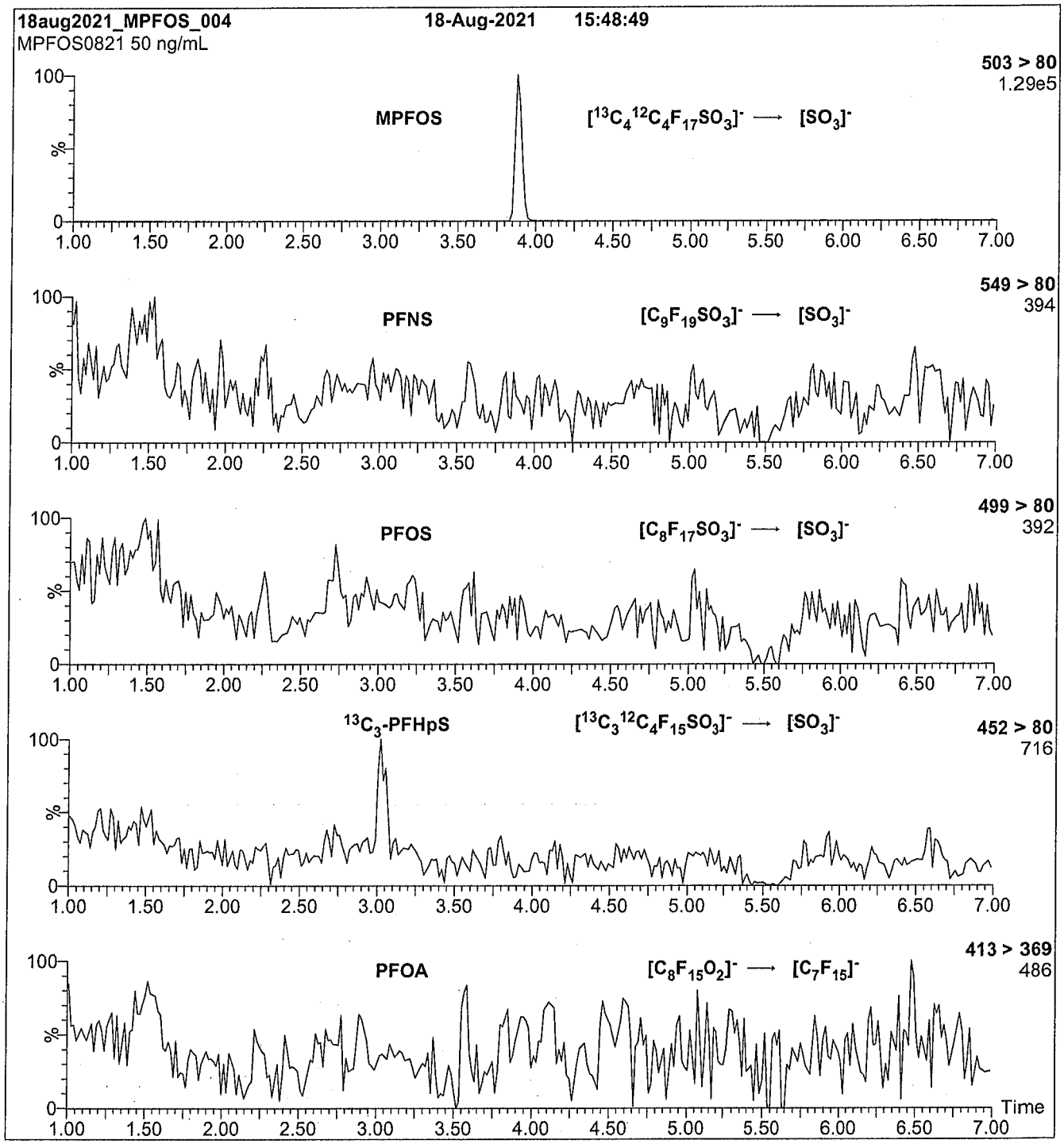
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFOS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFOS)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 42

Analytical Standard Record

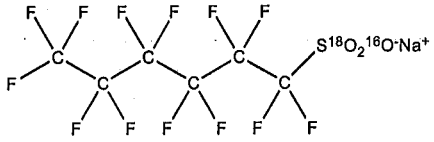
22A0121

Description:	PFAS - IIS MPFOS 50ug/mL	Expires:	08/18/2026
Standard Type:	Analyte Spike	Prepared:	08/18/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C4-PFOS		13C4-PFOS	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFHxS	**LOT NUMBER:**	MPFHxS1021
COMPOUND:	Sodium perfluoro-1-hexane($^{18}O_2$)sulfonate		
STRUCTURE:		**CAS #:**	1585941-14-5
MOLECULAR FORMULA:	$C_6F_{13}S^{18}O_2{}^{16}ONa$	**MOLECULAR WEIGHT:**	426.10
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.4 ± 2.4 µg/mL (MPFHxS acid) 47.3 ± 2.4 µg/mL (MPFHxS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	>94% ($^{18}O_2$)
LAST TESTED: (mm/dd/yyyy)	10/29/2021		
EXPIRY DATE: (mm/dd/yyyy)	10/29/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The response factor for MPFHxS ($C_6F_{13}S^{18}O_2{}^{16}O^-$) has been observed to be up to 10% lower than for PFHxS ($C_6F_{13}S^{16}O_3^-$) when both compounds are injected together. This difference may vary between instruments.
- Contains ~0.6% of sodium perfluoro-1-octane($^{18}O_2$)sulfonate ($^{18}O_2$-PFOS) and ~0.3% of sodium perfluoro-1-heptane($^{18}O_2$)sulfonate ($^{18}O_2$-PFHpS).
- Due to the isotopic purity of the starting material ($^{18}O_2$ >94%), MPFHxS contains ~0.3% of PFHxS. This value agrees with the theoretical percent relative abundance that is expected based on the stated isotopic purity.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

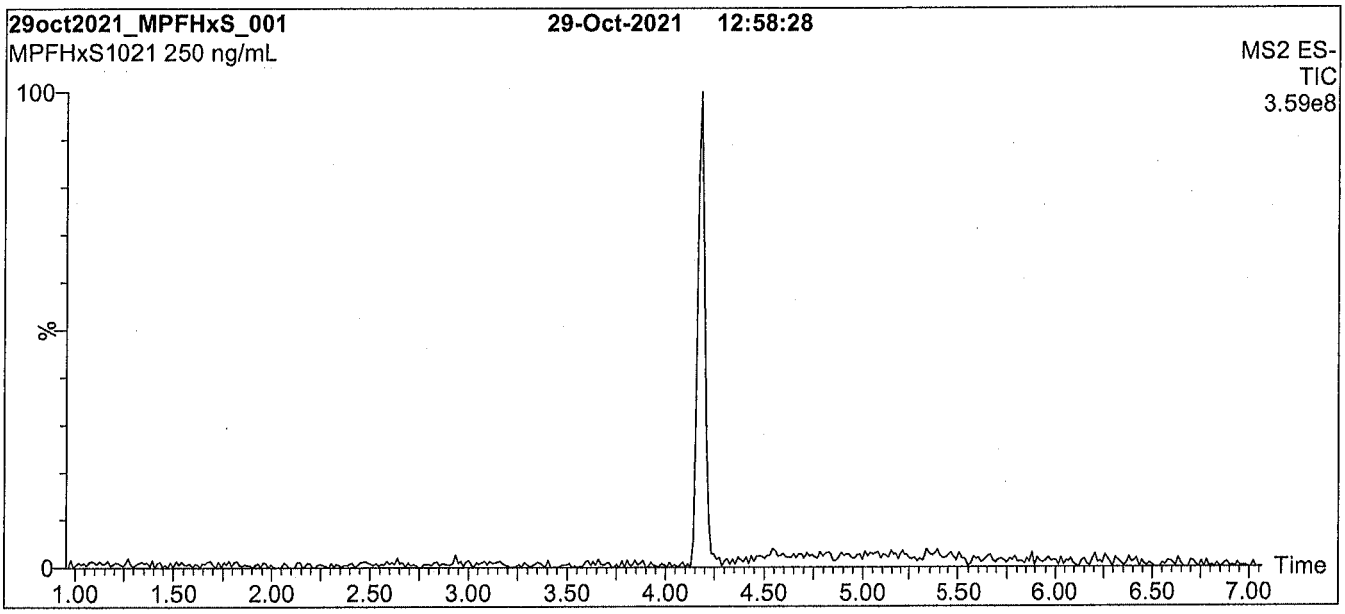
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

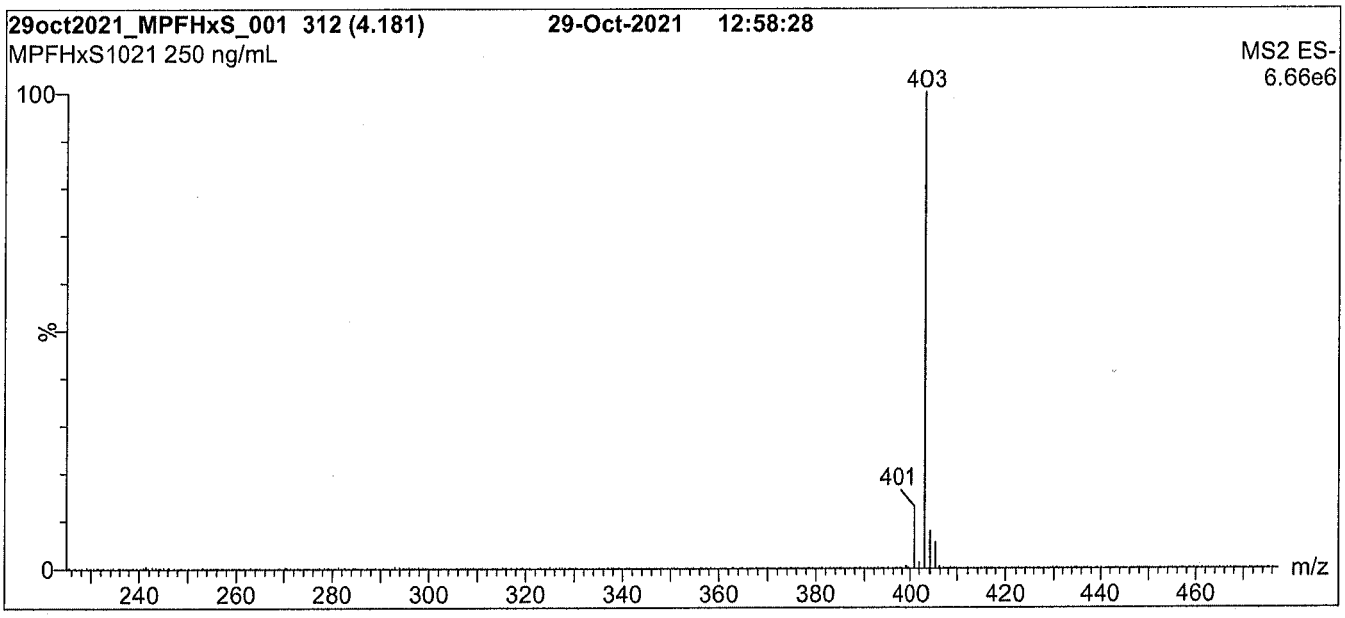
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFHxS; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 9 min and hold for
1 min before returning to initial conditions in 0.75 min.
Time: 12 min

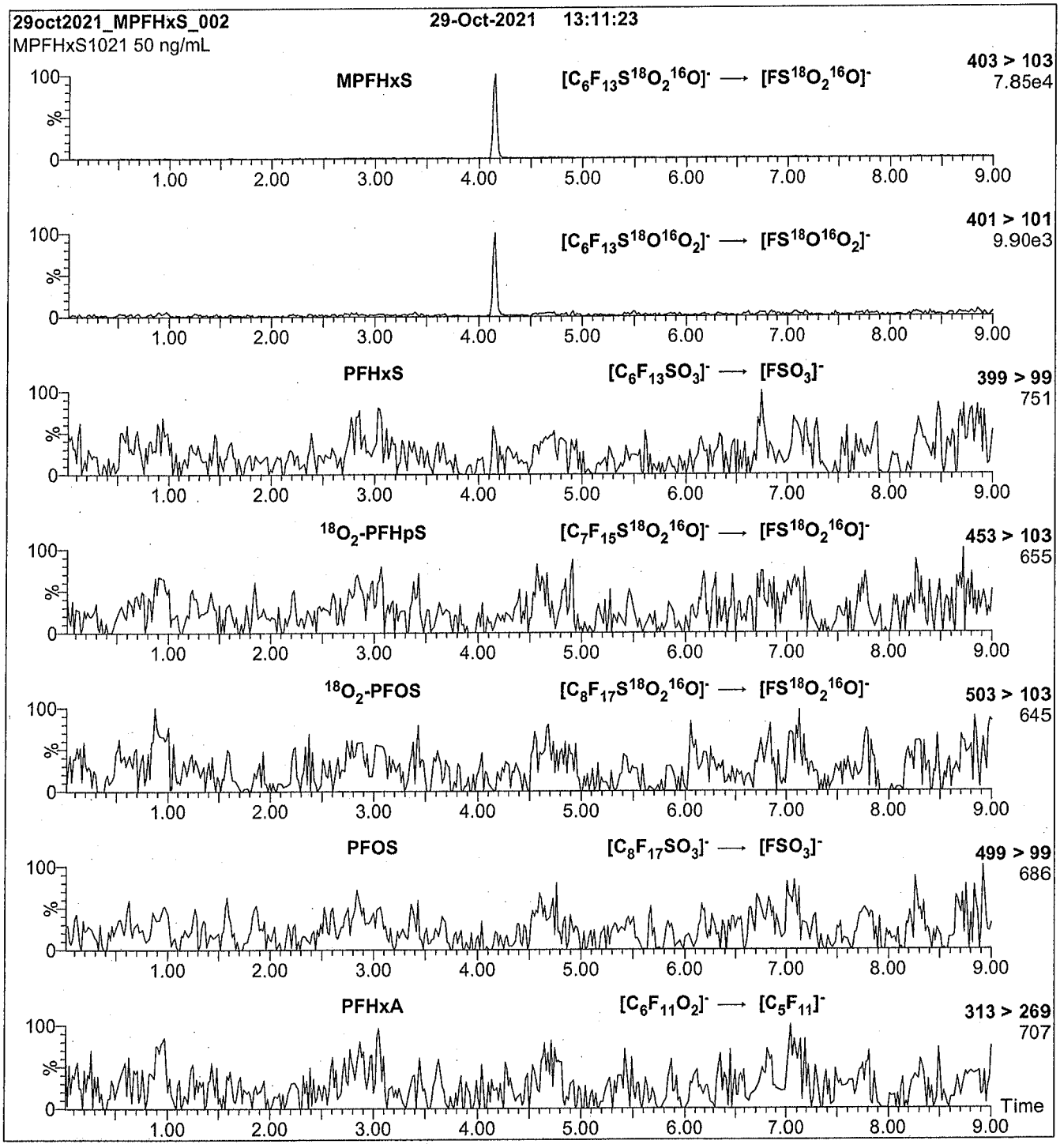
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFHxS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFHxS)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.16e-3
Collision Energy (eV) = 32

Analytical Standard Record

22A0122

Description:	PFAS - IIS MPFHxS 50ug/mL	Expires:	10/29/2026
Standard Type:	Analyte Spike	Prepared:	10/29/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH

Analyte	Parent	CAS Number	Concentration	Units
18O2-PFHXS		18O2-PFHXS	50	ug/mL

Analytical Standard Record

22A0122

Description:	PFAS - IIS MPFHxS 50ug/mL	Expires:	10/29/2026
Standard Type:	Analyte Spike	Prepared:	10/29/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH

Analyte	Parent	CAS Number	Concentration	Units
18O2-PFHXS		18O2-PFHXS	50	ug/mL

Calbiochem®

Certificate of Analysis

Taurodeoxycholic Acid, Sodium Salt - CAS 1180-95-6 - Calbiochem

Batch Number:	3761825
Material Number:	580221-5GM
Molecular Formula:	$C_{26}H_{44}NO_6S \cdot Na$
Molecular Weight:	521.7
CAS Number:	1180-95-6

Quality Release Date: 05 OCT 2021
Recommended Retest Date: 30 SEP 2023

Analytical Data

Test	Tolerance	Result
Solubility:		H_2O (100 mg/ml)
Chloride:		<0.01%
Loss on drying:	≤5.0 %	0.1%
Color:		White
Form:		Powder
TLC:	≥95.0 %	≥95.00%
IR:		Conforms to reference
Optical rotation:	35.0 ° - 39.0 °	+36.38°
Water by Karl Fischer:	≤5.0 %	2.86%
Carbon:	≥0.00 %	57.78%
Hydrogen:	≥0.00 %	8.32 %
Nitrogen:	≥0.00 %	2.77 %

Storage and Handling: +15°C to +30°C

This lot conforms to specifications established by EMD Millipore Corporation for this product.

Issued by Jamie Thomas

This document has been electronically produced and is valid without a signature

Quality Control/ Assurance Signature

05 OCT 2021
Date

EMD Millipore Corporation | 28820 Single Oak Dr., Temecula, CA 92590

Technical Support NA +1-800-221-1975 | email: www.millipore.com/techservices | www.calbiochem.com

Technical Support All Other Countries - Contact Your Local Office

FOR RESEARCH USE ONLY.

580221-5GM/09-MAY-2018/EA

Analytical Standard Record

22A0123

Description:	PFAS Taurodeoxycholic Acid, Sodium Salt	Expires:	09/30/2023
Standard Type:	Other	Prepared:	10/05/2021
Solvent:	n/a	Prepared By:	Dipti Gokal
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:54 by DAG

Analyte	Parent	CAS Number	Concentration	Units
TAURODEOXYCHOLIC ACID		516-50-7	1	ug/mL

Analytical Standard Record

22A0123

Description:	PFAS Taurodeoxycholic Acid, Sodium Salt	Expires:	09/30/2023
Standard Type:	Other	Prepared:	10/05/2021
Solvent:	n/a	Prepared By:	Dipti Gokal
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:54 by DAG

Analyte	Parent	CAS Number	Concentration	Units
TAURODEOXYCHOLIC ACID		516-50-7	1	ug/mL

Analytical Standard Record

22A0234

Description:	PFAS IIS 7C 5ug/mL	Expires:	01/20/2023
Standard Type:	Internal Standard	Prepared:	01/20/2022
Solvent:	MeOH/61252	Prepared By:	Dipti Gokal
Final Volume (mls):	12	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH
Comments:	mpfna had more left over than others.		

Analyte	Parent	CAS Number	Concentration	Units
13C3-PFBA	22A0116	13C3-PFBA	5	ug/mL
13C2-PFHXA	22A0117	13C2-PFHxA	5	ug/mL
13C5-PFNA	22A0118	13C5-PFNA	5	ug/mL
13C4-PFOA	22A0119	13C4-PFOA	5	ug/mL
13C2-PFDA	22A0120	13C2-PFDA	5	ug/mL
13C4-PFOS	22A0121	13C4-PFOS	5	ug/mL
18O2-PFHXS	22A0122	18O2-PFHXS	5	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0116	PFAS - IIS M3PFBA 50ug/mL	08/19/2021	Wellington Laboratories	M3PFBA0721	08/19/2026	01/20/2022 15:48	by HGH	1.2
22A0117	PFAS - IIS MPFHxA 50ug/mL	10/04/2021	Wellington Laboratories	MPFHxA0921	10/04/2026	01/20/2022 15:48	by HGH	1.2
22A0118	PFAS - IIS MPFNA 50ug/mL	10/29/2021	Wellington Laboratories	MPFNA1021	10/29/2026	01/20/2022 15:48	by HGH	1.2
22A0119	PFAS - IIS MPFOA 50ug/mL	12/07/2021	Wellington Laboratories	MPFOA1121	12/07/2026	01/20/2022 15:48	by HGH	1.2
22A0120	PFAS - IIS MPFDA 50ug/mL	12/08/2021	Wellington Laboratories	MPFDA1221	12/08/2026	01/20/2022 15:49	by HGH	1.2
22A0121	PFAS - IIS MPFOS 50ug/mL	08/18/2021	Wellington Laboratories	MPFOS0821	08/18/2026	01/20/2022 15:49	by HGH	1.2
22A0122	PFAS - IIS MPFHxS 50ug/mL	10/29/2021	Wellington Laboratories	MPFHxS1021	10/29/2026	01/20/2022 15:49	by HGH	1.2

Analytical Standard Record

22A0234

Description:	PFAS IIS 7C 5ug/mL	Expires:	01/20/2023
Standard Type:	Internal Standard	Prepared:	01/20/2022
Solvent:	MeOH/61252	Prepared By:	Dipti Gokal
Final Volume (mls):	12	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH
Comments:	mpfna had more left over than others.		

Analyte	Parent	CAS Number	Concentration	Units
13C3-PFBA	22A0116	13C3-PFBA	5	ug/mL
13C2-PFHXA	22A0117	13C2-PFHxA	5	ug/mL
13C5-PFNA	22A0118	13C5-PFNA	5	ug/mL
13C4-PFOA	22A0119	13C4-PFOA	5	ug/mL
13C2-PFDA	22A0120	13C2-PFDA	5	ug/mL
13C4-PFOS	22A0121	13C4-PFOS	5	ug/mL
18O2-PFHXS	22A0122	18O2-PFHXS	5	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0116	PFAS - IIS M3PFBA 50ug/mL	08/19/2021	Wellington Laboratories	M3PFBA0721	08/19/2026	01/20/2022 15:48	by HGH	1.2
22A0117	PFAS - IIS MPFHxA 50ug/mL	10/04/2021	Wellington Laboratories	MPFHxA0921	10/04/2026	01/20/2022 15:48	by HGH	1.2
22A0118	PFAS - IIS MPFNA 50ug/mL	10/29/2021	Wellington Laboratories	MPFNA1021	10/29/2026	01/20/2022 15:48	by HGH	1.2
22A0119	PFAS - IIS MPFOA 50ug/mL	12/07/2021	Wellington Laboratories	MPFOA1121	12/07/2026	01/20/2022 15:48	by HGH	1.2
22A0120	PFAS - IIS MPFDA 50ug/mL	12/08/2021	Wellington Laboratories	MPFDA1221	12/08/2026	01/20/2022 15:49	by HGH	1.2
22A0121	PFAS - IIS MPFOS 50ug/mL	08/18/2021	Wellington Laboratories	MPFOS0821	08/18/2026	01/20/2022 15:49	by HGH	1.2
22A0122	PFAS - IIS MPFHxS 50ug/mL	10/29/2021	Wellington Laboratories	MPFHxS1021	10/29/2026	01/20/2022 15:49	by HGH	1.2

Analytical Standard Record

22A0234

Description:	PFAS IIS 7C 5ug/mL	Expires:	01/20/2023
Standard Type:	Internal Standard	Prepared:	01/20/2022
Solvent:	MeOH/61252	Prepared By:	Dipti Gokal
Final Volume (mls):	12	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH
Comments:	mpfna had more left over than others.		

Analyte	Parent	CAS Number	Concentration	Units
13C3-PFBA	22A0116	13C3-PFBA	5	ug/mL
13C2-PFHXA	22A0117	13C2-PFHxA	5	ug/mL
13C5-PFNA	22A0118	13C5-PFNA	5	ug/mL
13C4-PFOA	22A0119	13C4-PFOA	5	ug/mL
13C2-PFDA	22A0120	13C2-PFDA	5	ug/mL
13C4-PFOS	22A0121	13C4-PFOS	5	ug/mL
18O2-PFHXS	22A0122	18O2-PFHXS	5	ug/mL

Parent Standards used:

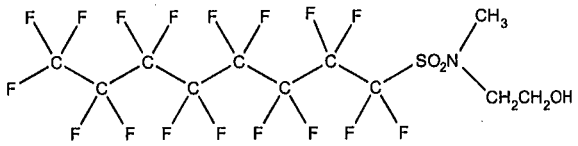
Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0116	PFAS - IIS M3PFBA 50ug/mL	08/19/2021	Wellington Laboratories	M3PFBA0721	08/19/2026	01/20/2022 15:48	by HGH	1.2
22A0117	PFAS - IIS MPFHxA 50ug/mL	10/04/2021	Wellington Laboratories	MPFHxA0921	10/04/2026	01/20/2022 15:48	by HGH	1.2
22A0118	PFAS - IIS MPFNA 50ug/mL	10/29/2021	Wellington Laboratories	MPFNA1021	10/29/2026	01/20/2022 15:48	by HGH	1.2
22A0119	PFAS - IIS MPFOA 50ug/mL	12/07/2021	Wellington Laboratories	MPFOA1121	12/07/2026	01/20/2022 15:48	by HGH	1.2
22A0120	PFAS - IIS MPFDA 50ug/mL	12/08/2021	Wellington Laboratories	MPFDA1221	12/08/2026	01/20/2022 15:49	by HGH	1.2
22A0121	PFAS - IIS MPFOS 50ug/mL	08/18/2021	Wellington Laboratories	MPFOS0821	08/18/2026	01/20/2022 15:49	by HGH	1.2
22A0122	PFAS - IIS MPFHxS 50ug/mL	10/29/2021	Wellington Laboratories	MPFHxS1021	10/29/2026	01/20/2022 15:49	by HGH	1.2

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M
LOT NUMBER: NMeFOSE0921M 22C0307
COMPOUND: 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE:
CAS #: 24448-09-7



MOLECULAR FORMULA:	$C_{11}H_8F_{17}NO_3S$	**MOLECULAR WEIGHT:**	557.22
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/22/2021 (HRGC/LRMS) 09/23/2021 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	09/23/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/28/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

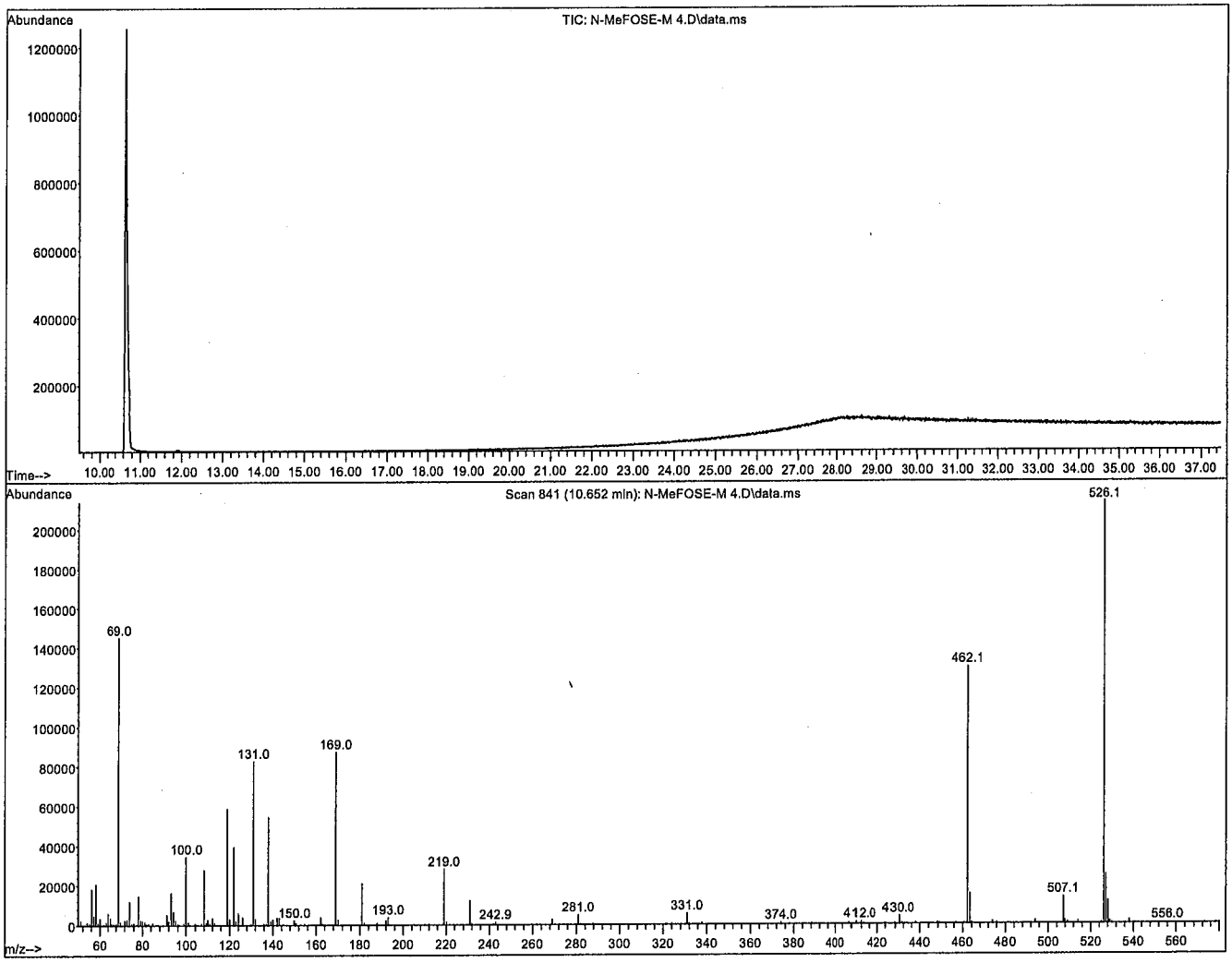
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **N-MeFOSE-M; HRGC/LRMS Data (Full Scan and Mass Spectrum)**



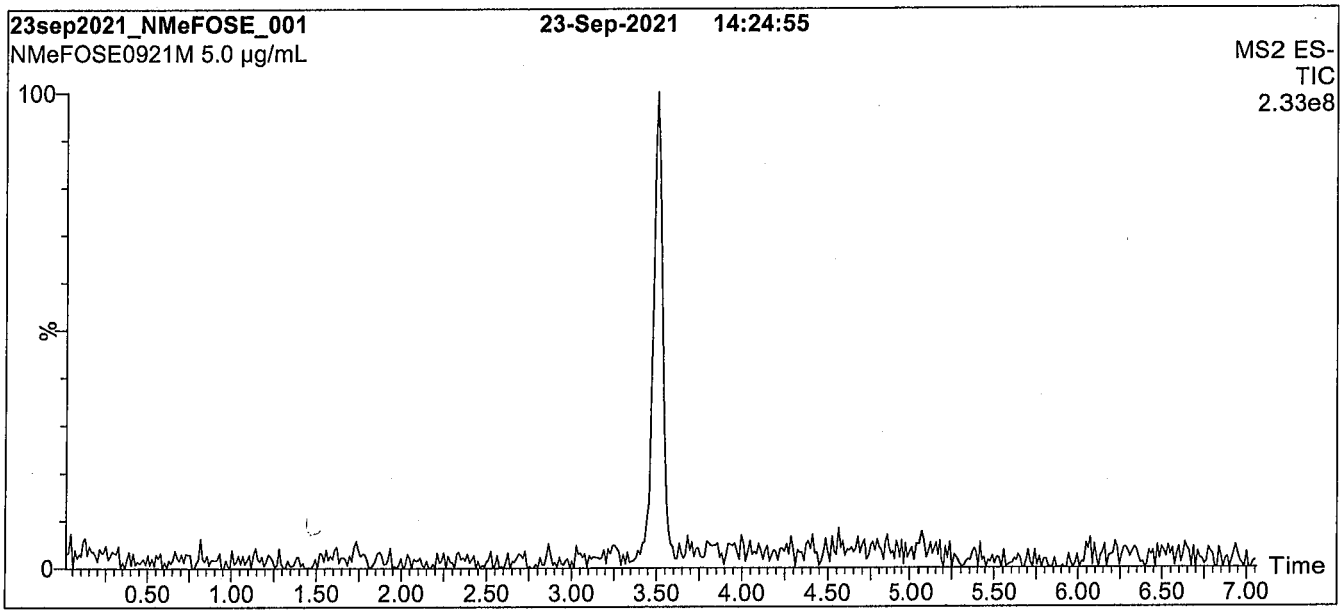
Conditions for Figure 1:

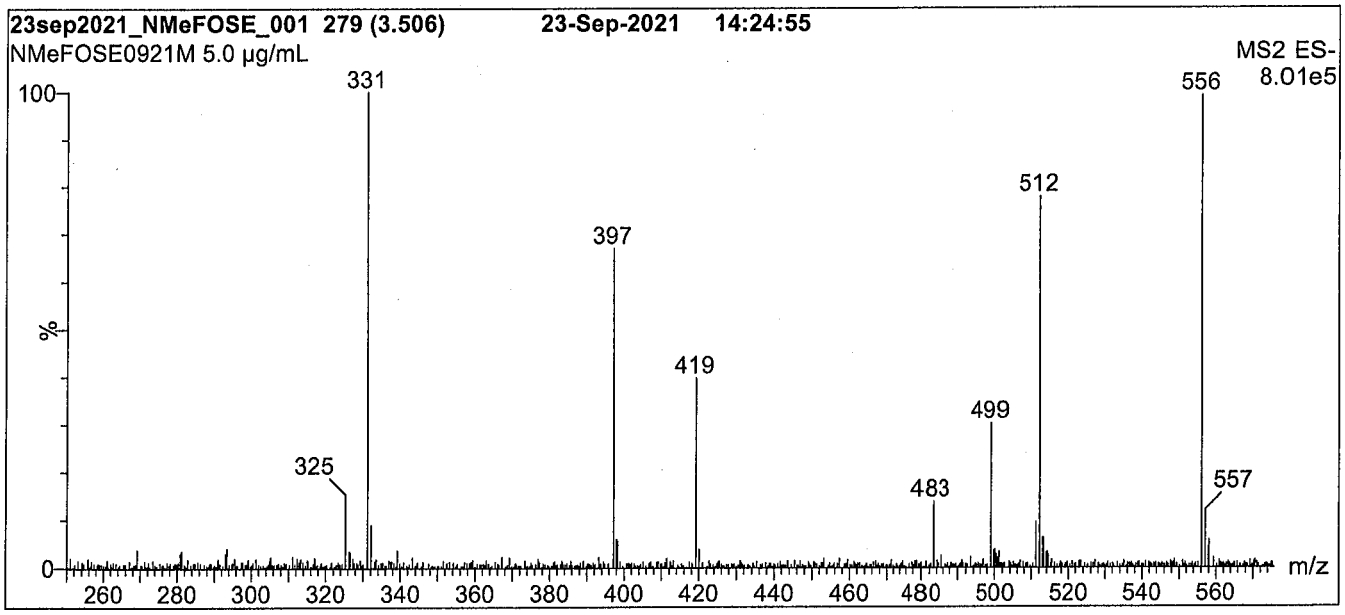
Agilent 7890A HRGC
Agilent 5975C MSD

Chromatographic Conditions:

Column:	30 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W
Flow:	Constant at 1 mL/min
Injector:	250°C (Splitless Injection)
Oven:	100°C (5 min)
	10°C/min to 310°C
	310°C (10 min)
Ionization:	EI+
Detector:	230°C
	Full Scan (50-1000 amu)

Figure 2: **N-MeFOSE-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 2:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% H_2O / 70% MeOH
Ramp to 90% organic over 8 min and hold for
1.5 min before returning to initial conditions in 1 min.
Time: 12 min

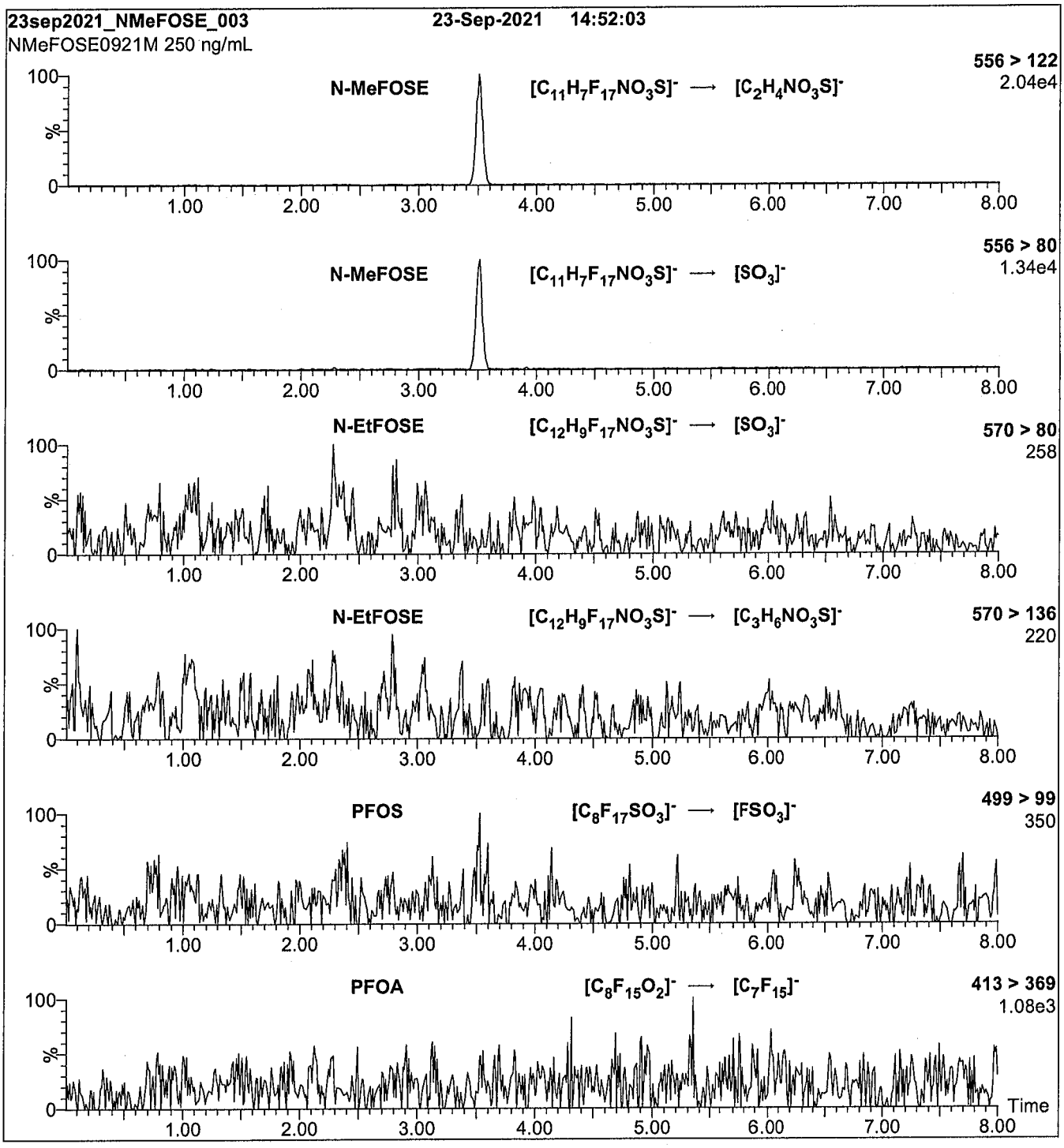
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Desolvation Temperature (°C) = 450
Desolvation Gas Flow (L/hr) = 1000

Figure 3: **N-MeFOSE-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (N-MeFOSE-M)

Mobile phase: Same as Figure 2

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.14e-3
Collision Energy (eV) = 36

Analytical Standard Record

22C0307

Description:	PFAS - SAS N-MeFOSE 50ug/mL	Expires:	09/23/2026
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: NMeFOSE0921M)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 15:59 by DAG

Analyte	Parent	CAS Number	Concentration	Units
NMeFOSE		24448-09-7	50	ug/mL

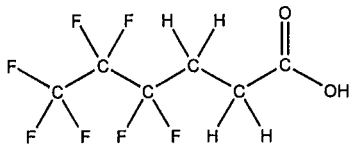
Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	FPrPA	**LOT NUMBER:**	FPrPA0122
COMPOUND:	3-Perfluoropropyl propanoic acid		22C0308
STRUCTURE:		**CAS #:**	356-02-5



MOLECULAR FORMULA:	$C_6H_5F_7O_2$	**MOLECULAR WEIGHT:**	242.09
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	02/03/2022		
EXPIRY DATE: (mm/dd/yyyy)	02/03/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/04/2022 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

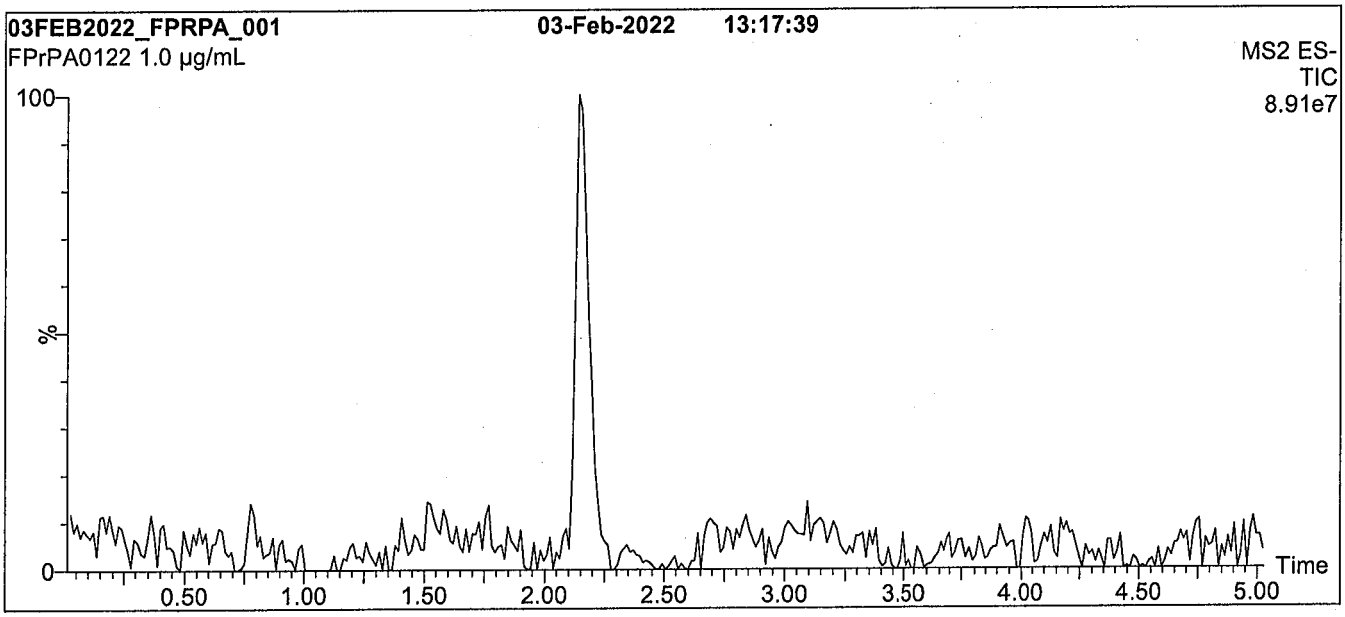
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

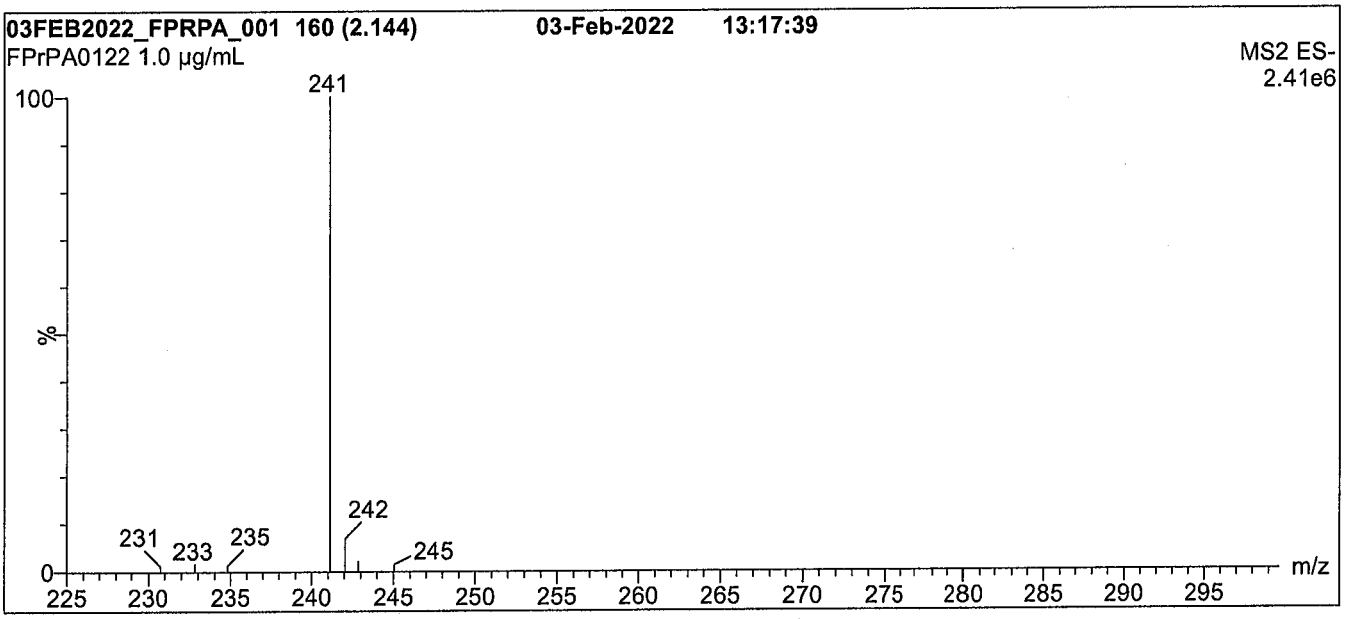
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **FPrPA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% H_2O / 40% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

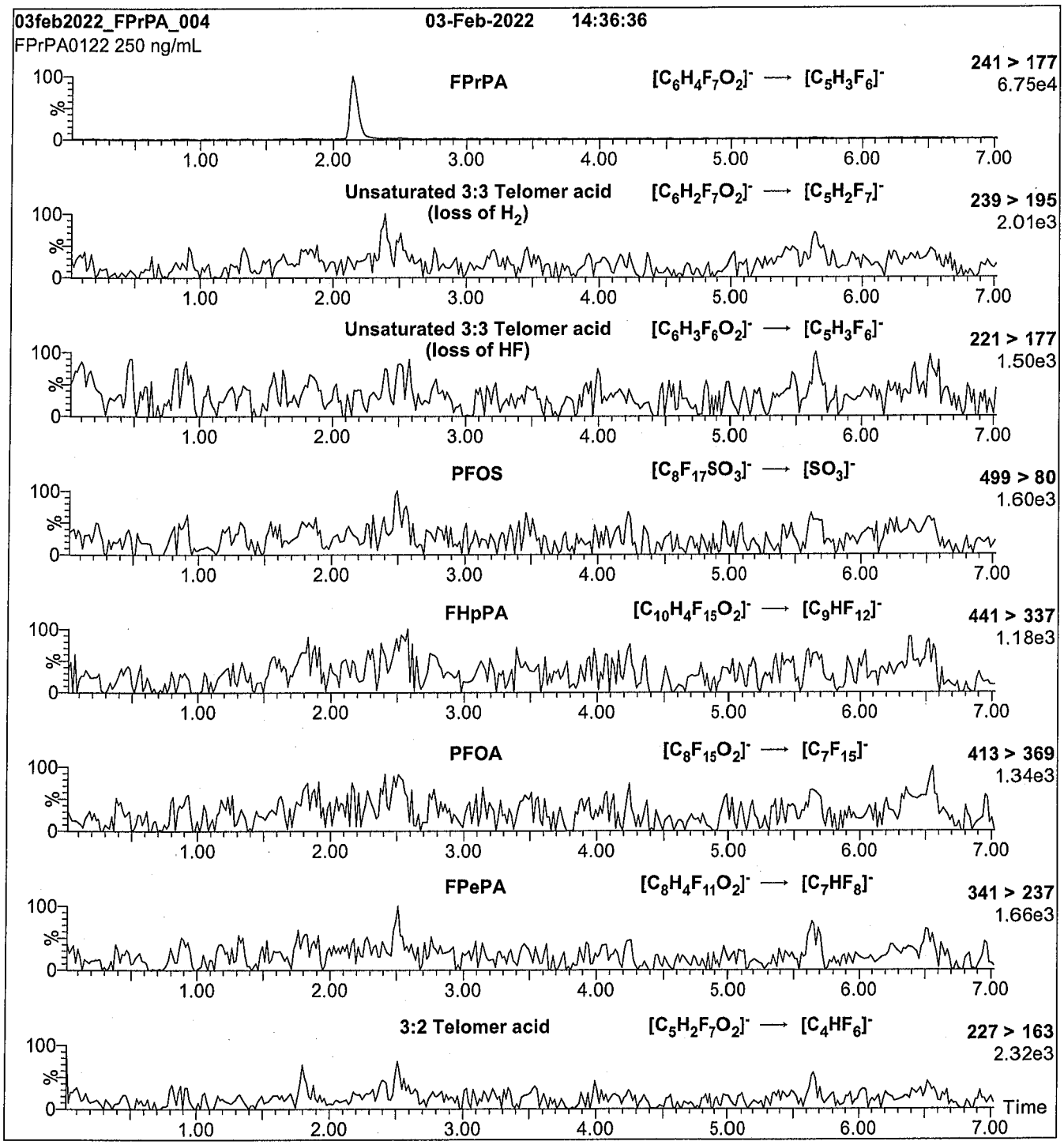
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **FPrPA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (FPrPA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.33e-3
Collision Energy (eV) = 10

Analytical Standard Record

22C0308

Description:	PFAS - SAS FPrPA 50ug/mL	Expires:	02/03/2027
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: FPrPA0122)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 15:59 by DAG

Analyte	Parent	CAS Number	Concentration	Units
3:3FTCA		113507-82-7	50	ug/mL

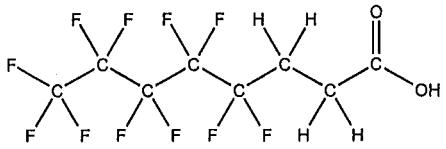
Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	FPePA	**LOT NUMBER:**	FPePA1221 22C0309
COMPOUND:	3-Perfluoropentyl propanoic acid		
STRUCTURE:		**CAS #:**	914637-49-3



MOLECULAR FORMULA:	$C_8H_5F_{11}O_2$	**MOLECULAR WEIGHT:**	342.11
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	01/05/2022		
EXPIRY DATE: (mm/dd/yyyy)	01/05/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <0.5% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^1H NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/06/2022 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

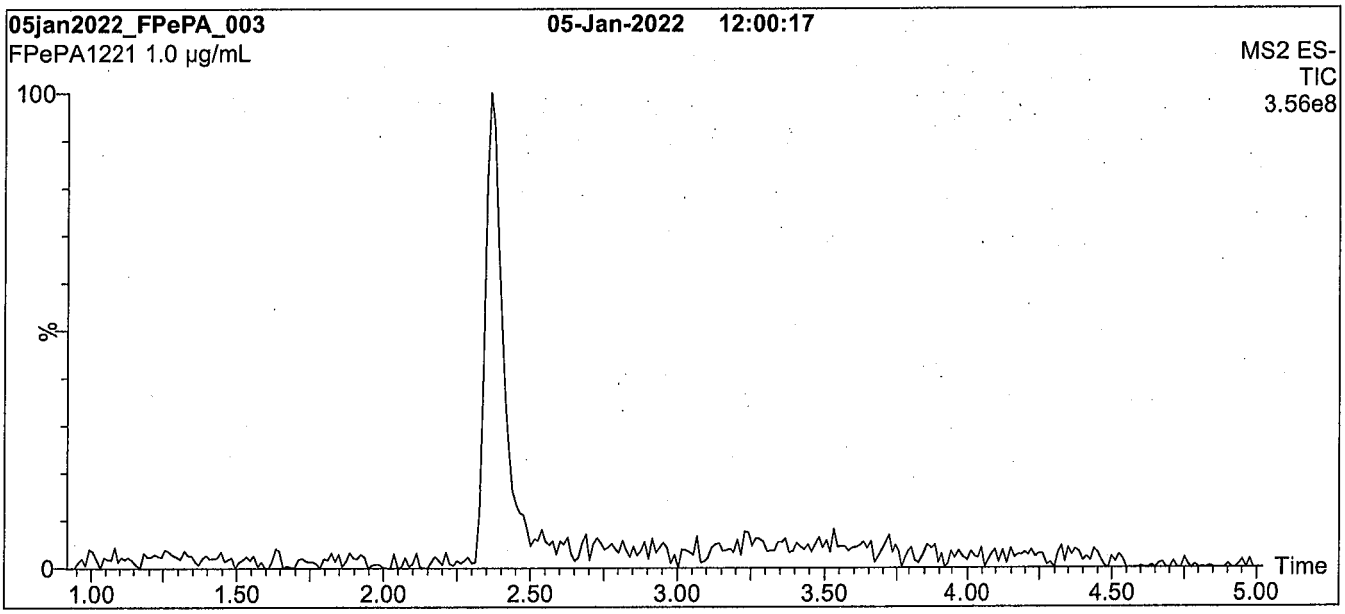
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

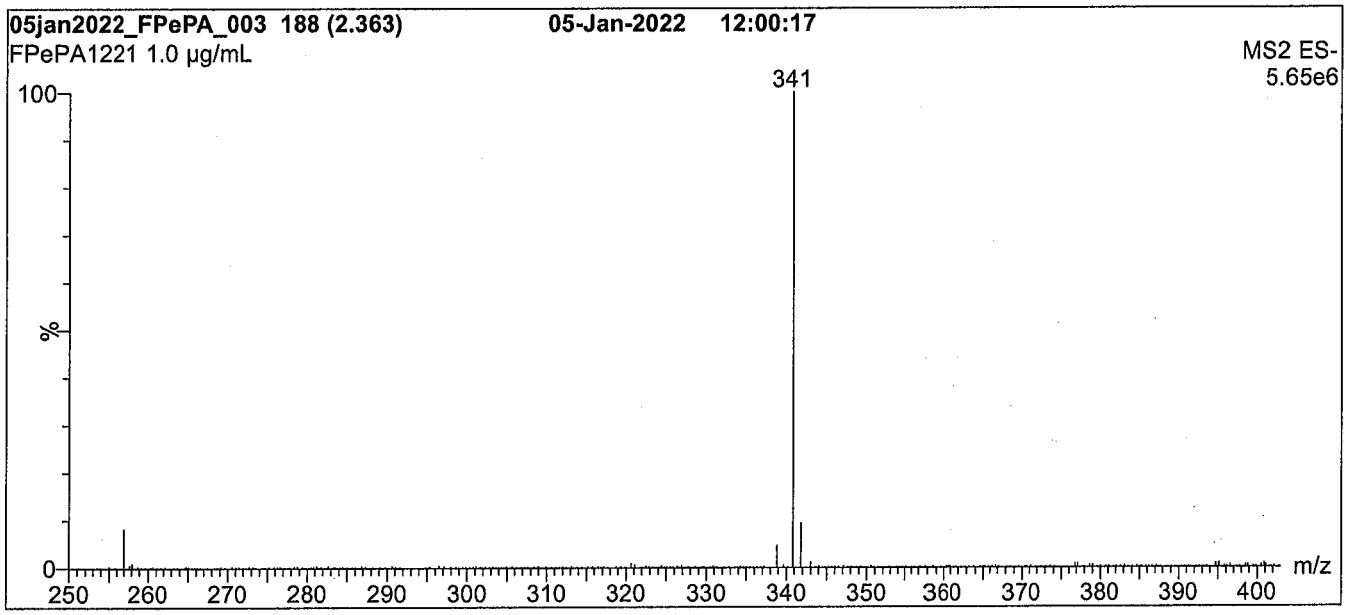
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **FPePA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

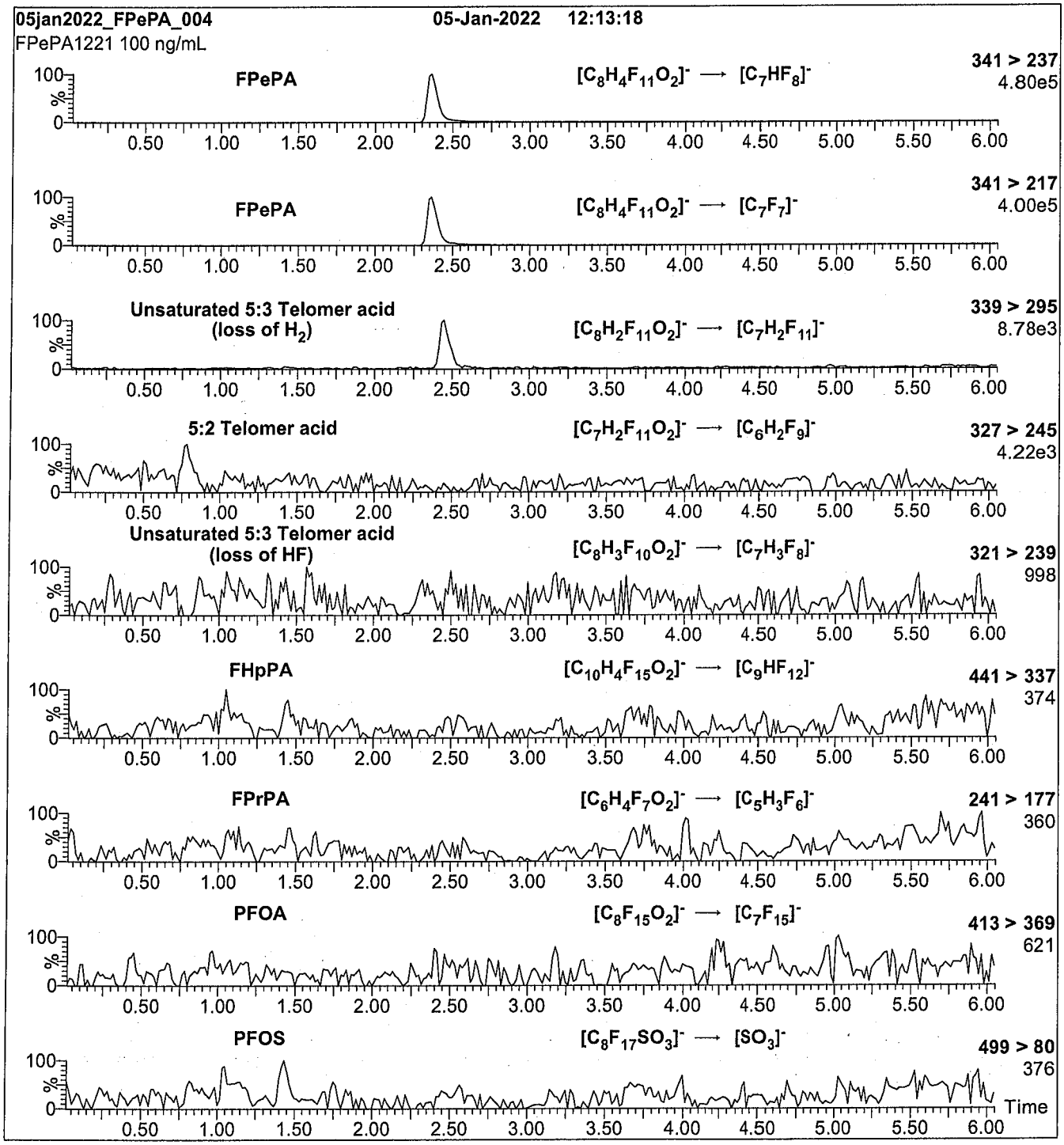
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 18.50
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **FPePA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (FPePA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.09e-3
Collision Energy (eV) = 10

Analytical Standard Record

22C0309

Description:	PFAS - SAS FPePA 50ug/mL	Expires:	01/05/2027
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: FPePA1221)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 15:59 by DAG

Analyte	Parent	CAS Number	Concentration	Units
5:3FTCA		914637-49-3	50	ug/mL

Reviewed By

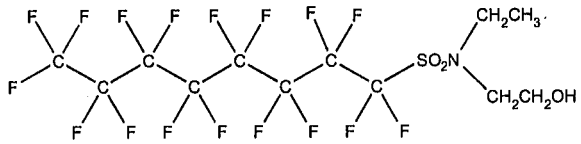
Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSE-M
LOT NUMBER: NEtFOSE0921M
COMPOUND: 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol
22C0310

STRUCTURE:
CAS #: 1691-99-2



MOLECULAR FORMULA:	$C_{12}H_{10}F_{17}NO_3S$	**MOLECULAR WEIGHT:**	571.25
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/22/2021 (HRGC/LRMS) 09/23/2021 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	09/23/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/20/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

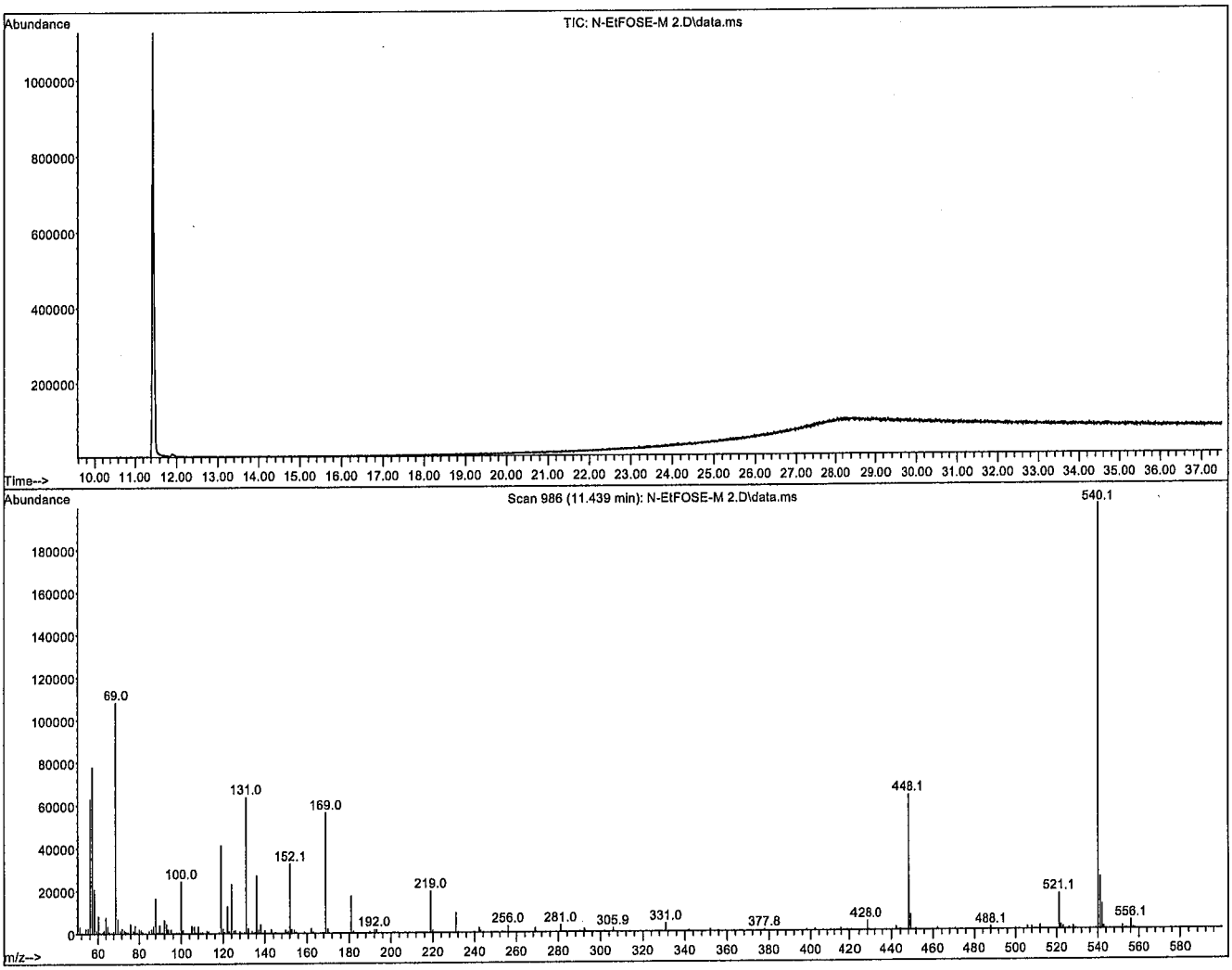
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **N-EtFOSE-M; HRGC/LRMS Data (Full Scan and Mass Spectrum)**



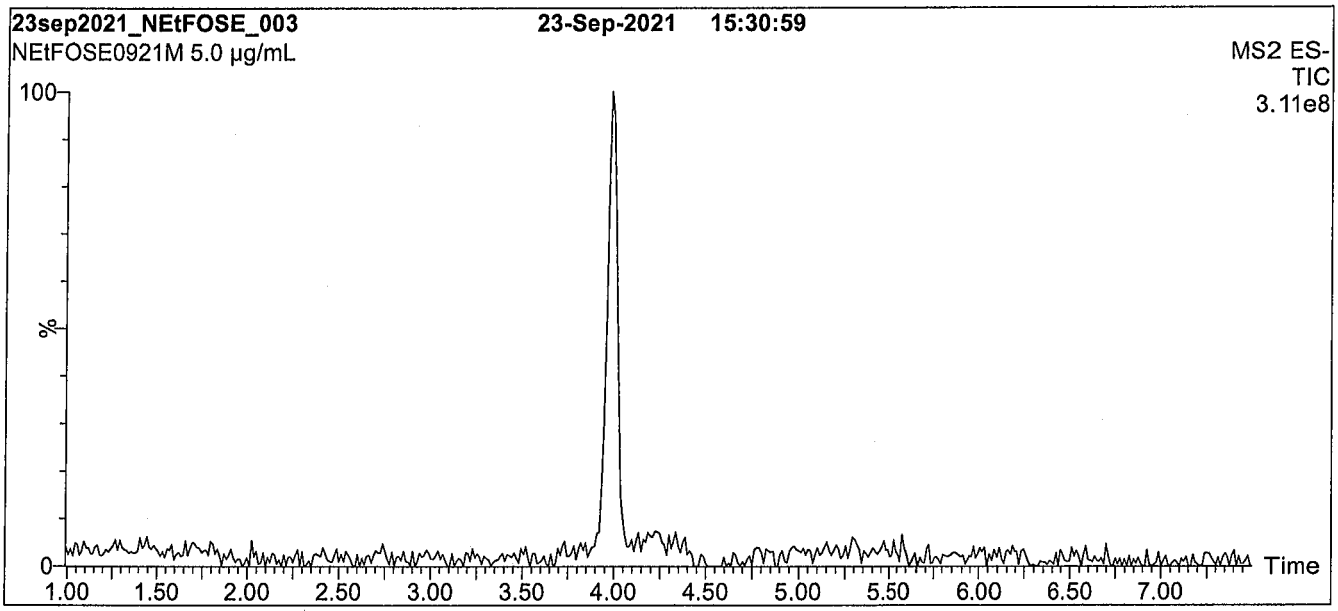
Conditions for Figure 1:

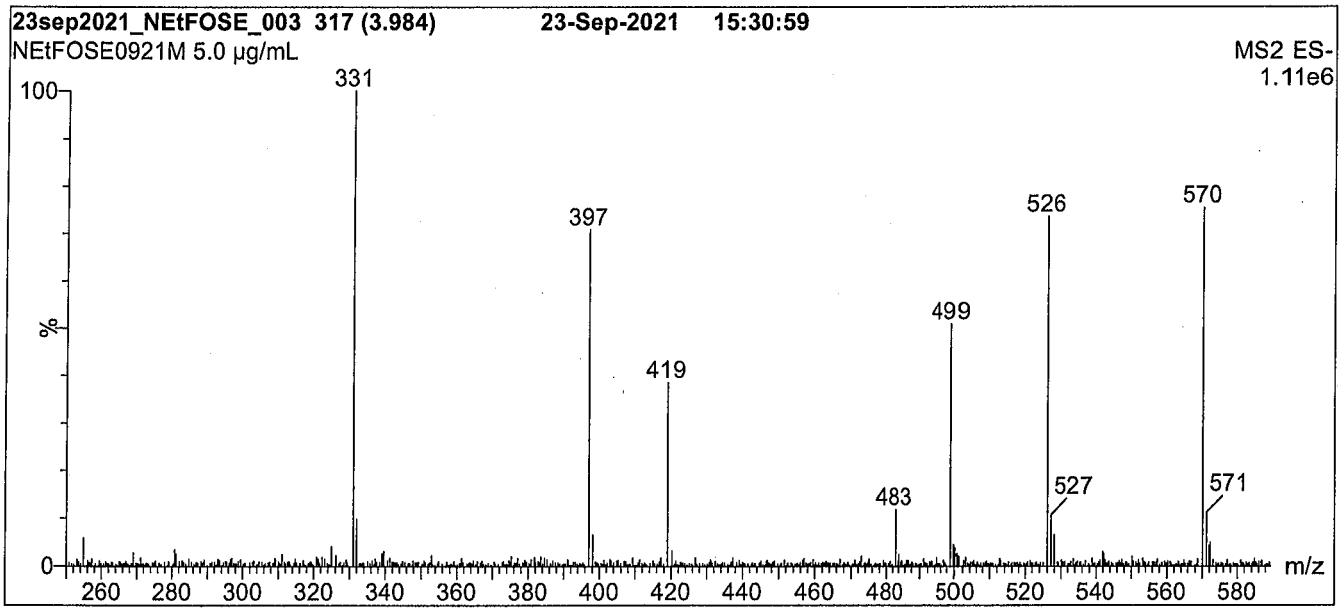
Agilent 7890A HRGC
Agilent 5975C MSD

Chromatographic Conditions:

Column:	30 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W
Flow:	Constant at 1 mL/min
Injector:	250°C (Splitless Injection)
Oven:	100°C (5 min)
	10°C/min to 325°C
	325°C (10 min)
Ionization:	EI+
Detector:	230°C
	Full Scan (50-1000 amu)

Figure 2: **N-EtFOSE-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 2:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% H_2O / 70% MeOH
Ramp to 90% organic over 8 min and hold for
1.5 min before returning to initial conditions in 1 min.
Time: 12 min

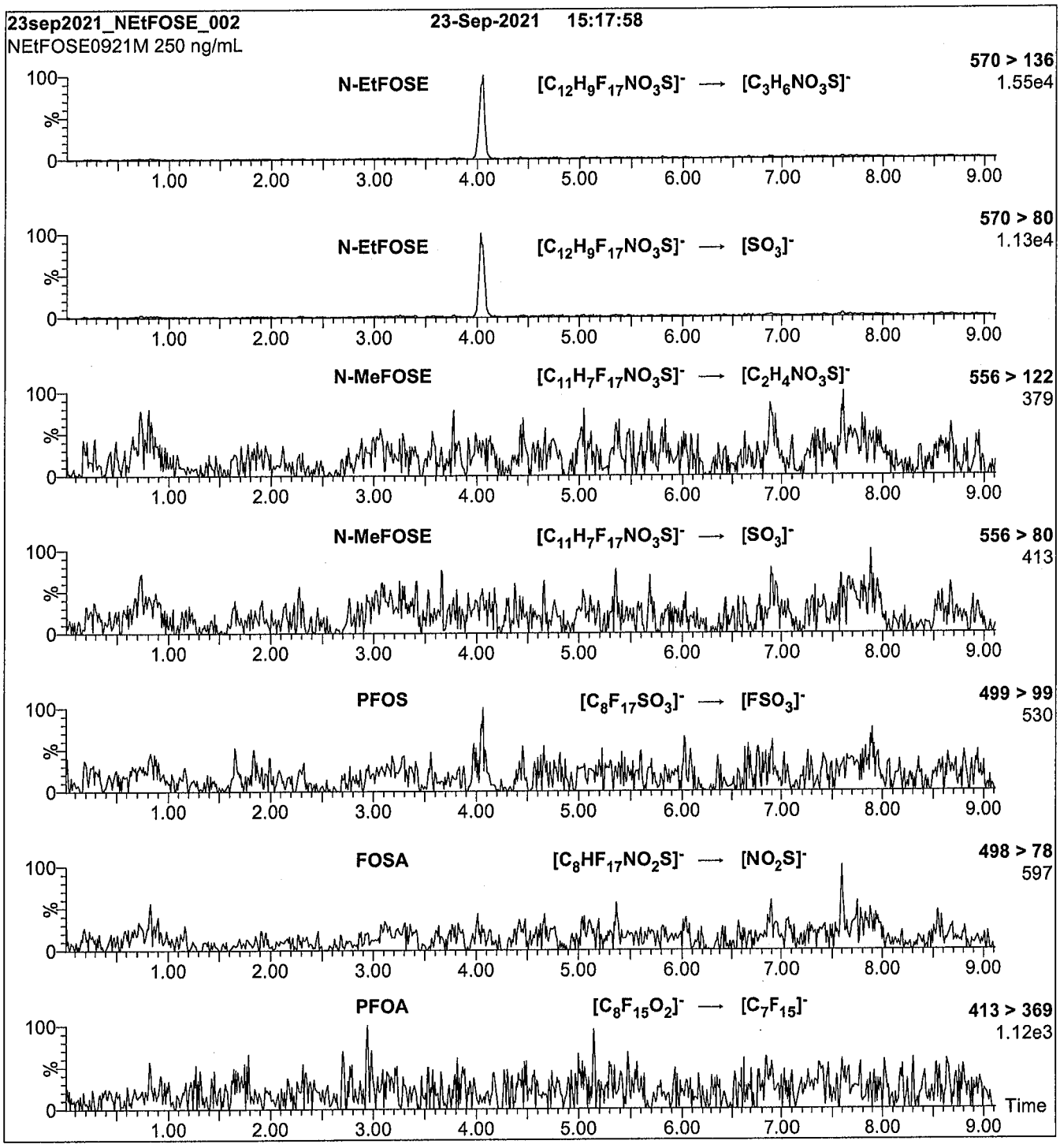
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Desolvation Temperature (°C) = 450
Desolvation Gas Flow (L/hr) = 1000

Figure 3: **N-EtFOSE-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (N-EtFOSE-M)

Mobile phase: Same as Figure 2

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.14e-3
Collision Energy (eV) = 32

Analytical Standard Record

22C0310

Description:	PFAS - SAS NEtFOSE 50ug/mL	Expires:	09/23/2026
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: NEtFOSE0921M)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 15:59 by DAG

Analyte	Parent	CAS Number	Concentration	Units
NEtFOSE		1691-99-2	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

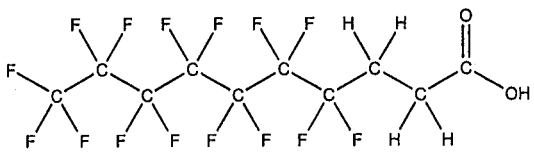
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020
22C0311

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA:	$C_{10}H_5F_{15}O_2$	**MOLECULAR WEIGHT:**	442.12
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	11/12/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/12/2025		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/27/2020 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

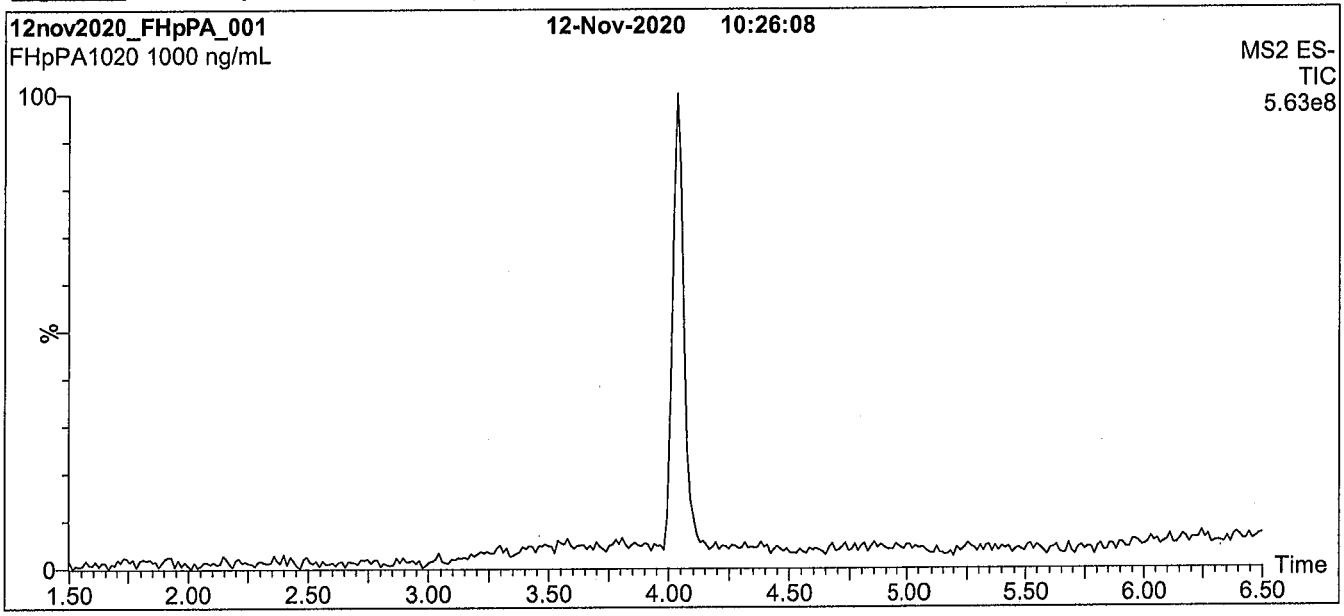
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

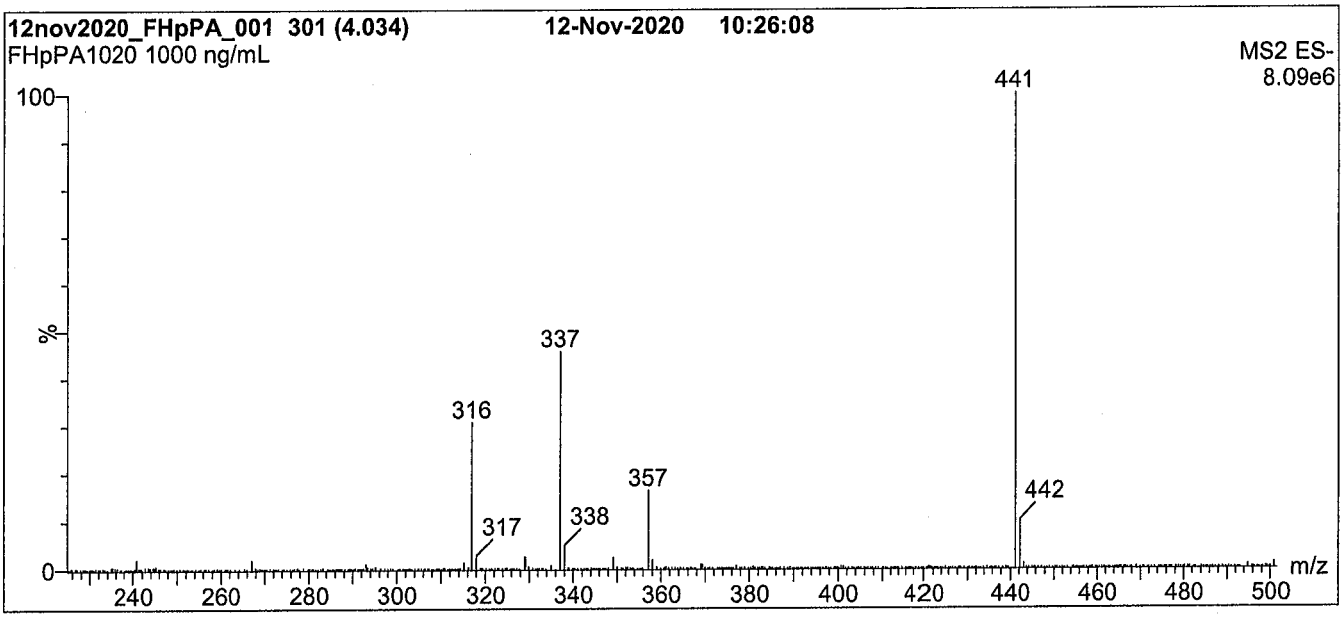
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **FHpPA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

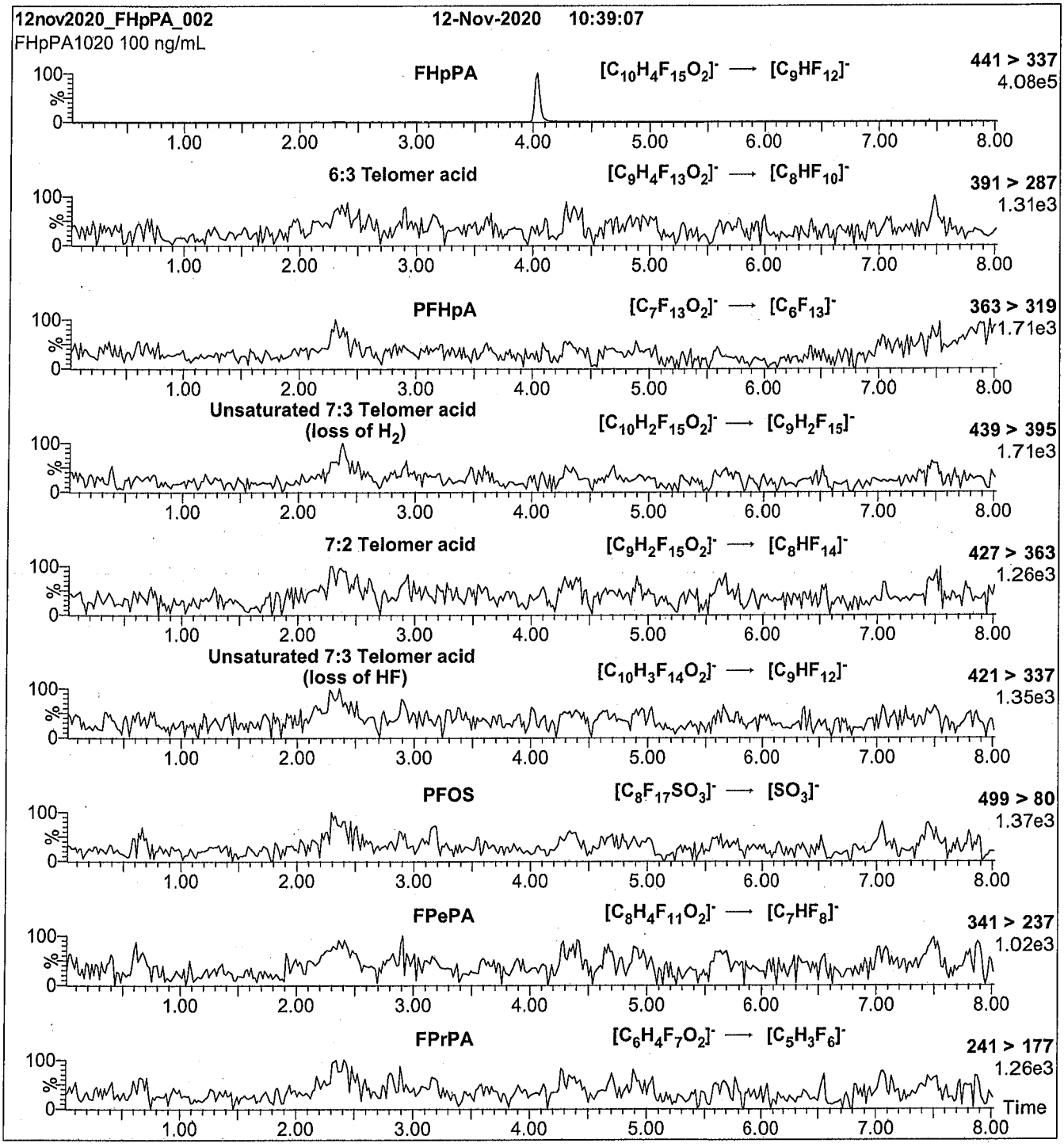
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 28.50
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **FHpPA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (FHpPA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.41e-3
Collision Energy (eV) = 8

Analytical Standard Record

22C0311

Description:	PFAS - SAS FHpPA 50ug/mL	Expires:	11/12/2025
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: HHpPA1020)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 16:00 by DAG

Analyte	Parent	CAS Number	Concentration	Units
7:3FTCA		812-70-4	50	ug/mL

Reviewed By

Date

Analytical Standard Record

22C0311

Description:	PFAS - SAS FHpPA 50ug/mL	Expires:	11/12/2025
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: HHpPA1020)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 16:00 by DAG

Analyte	Parent	CAS Number	Concentration	Units
7:3FTCA		812-70-4	50	ug/mL

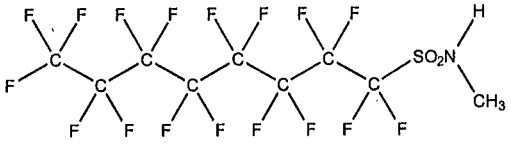
Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	N-MeFOSA-M	**LOT NUMBER:**	NMeFOSA0721M
COMPOUND:	N-methylperfluoro-1-octanesulfonamide		22C0312
STRUCTURE:		**CAS #:**	31506-32-8



MOLECULAR FORMULA:	$C_9H_4F_{17}NO_2S$	**MOLECULAR WEIGHT:**	513.17
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	08/03/2021		
EXPIRY DATE: (mm/dd/yyyy)	08/03/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/04/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

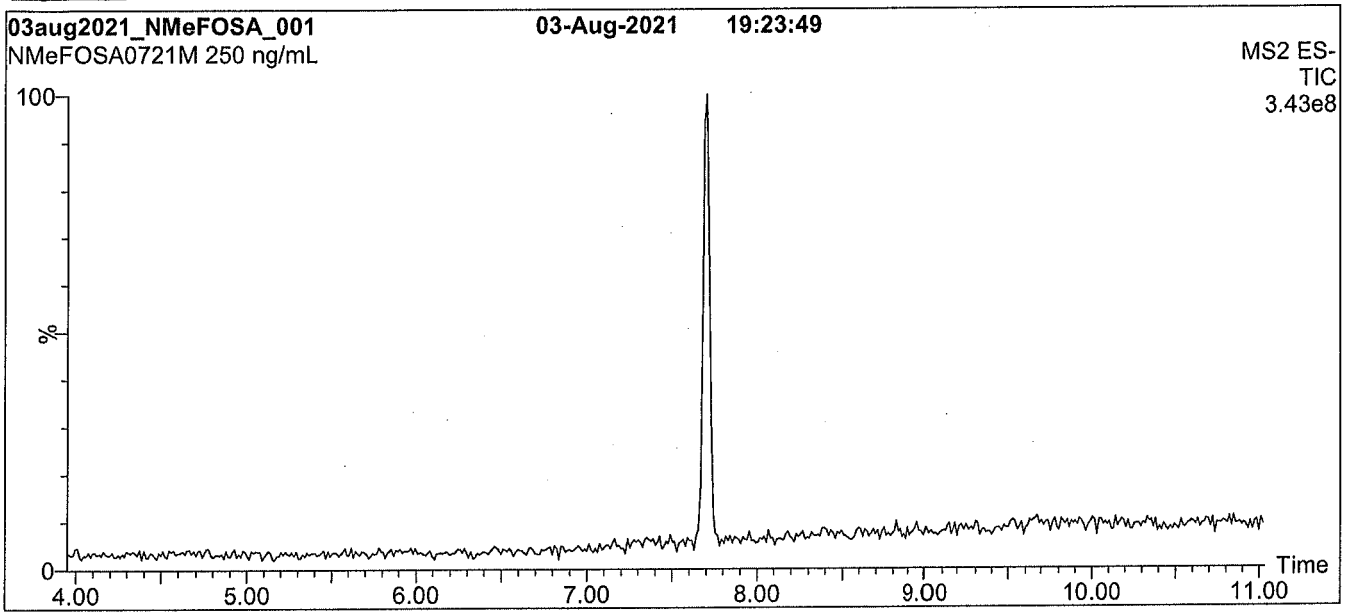
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

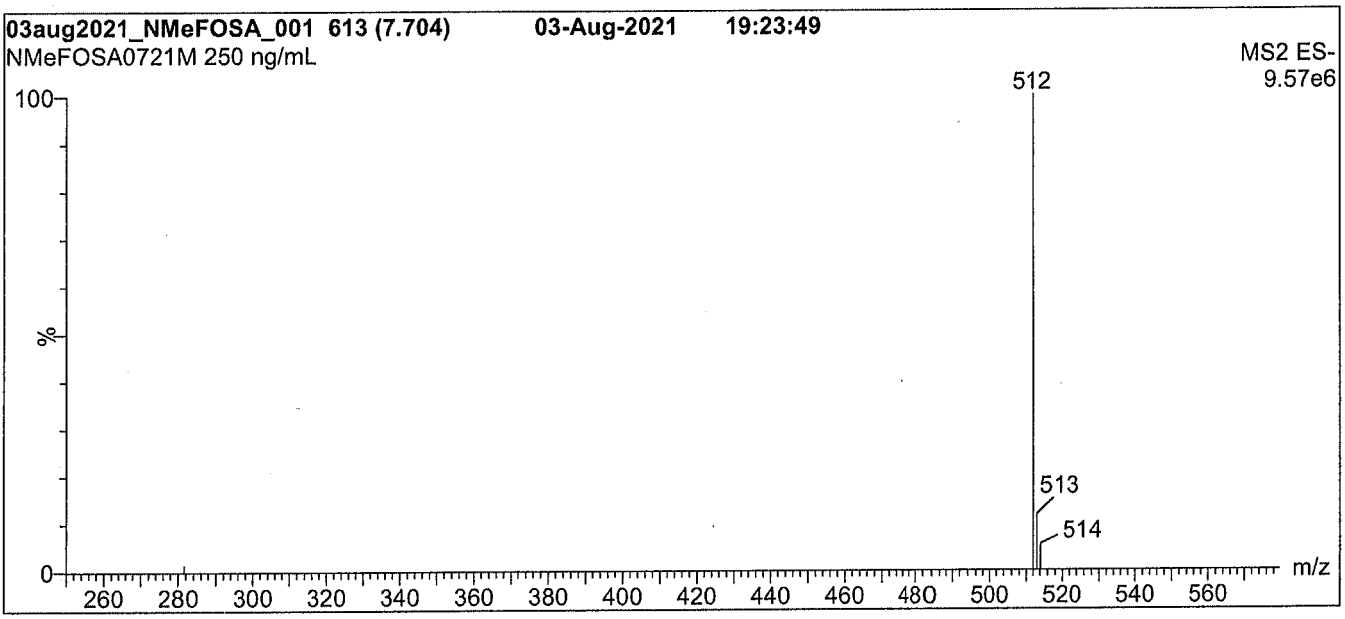
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **N-MeFOSA-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

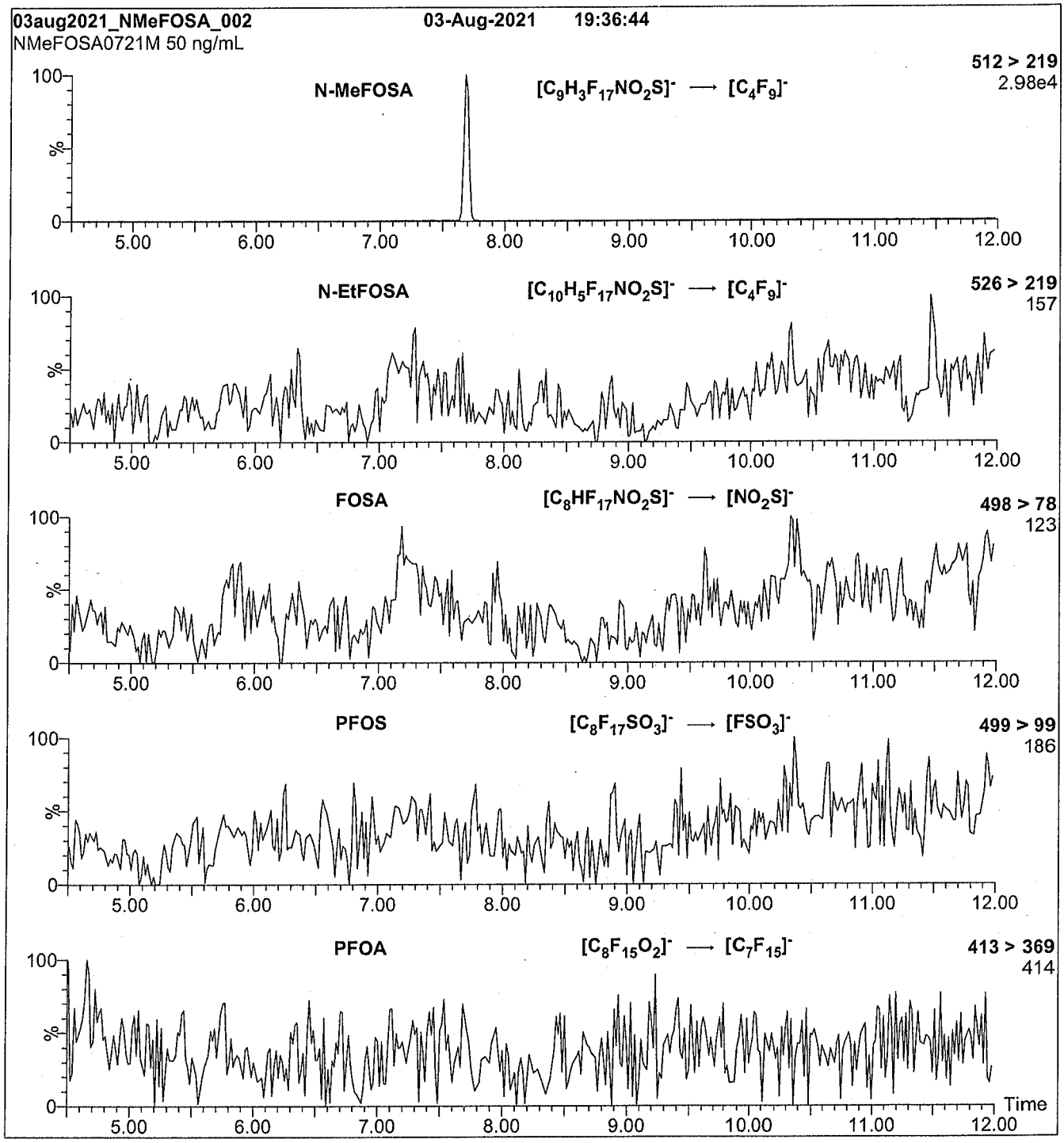
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 1.00
Cone Voltage (V) = 44.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (N-MeFOSA-M)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.41e-3
Collision Energy (eV) = 24

Analytical Standard Record

22C0312

Description:	PFAS - SAS NMeFOSA 50ug/mL	Expires:	08/03/2026
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Dipti Gokal
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 16:00 by DAG

Analyte	Parent	CAS Number	Concentration	Units
NMeFOSA		31506-32-8	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

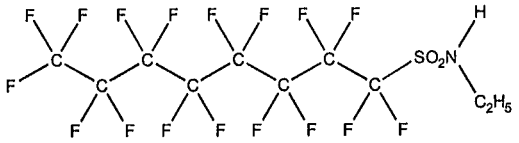
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEtFOSA0821M
22C0313

CAS #: 4151-50-2

STRUCTURE:



MOLECULAR FORMULA:	$C_{10}H_6F_{17}NO_2S$	**MOLECULAR WEIGHT:**	527.20
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	08/12/2021		
EXPIRY DATE: (mm/dd/yyyy)	08/12/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

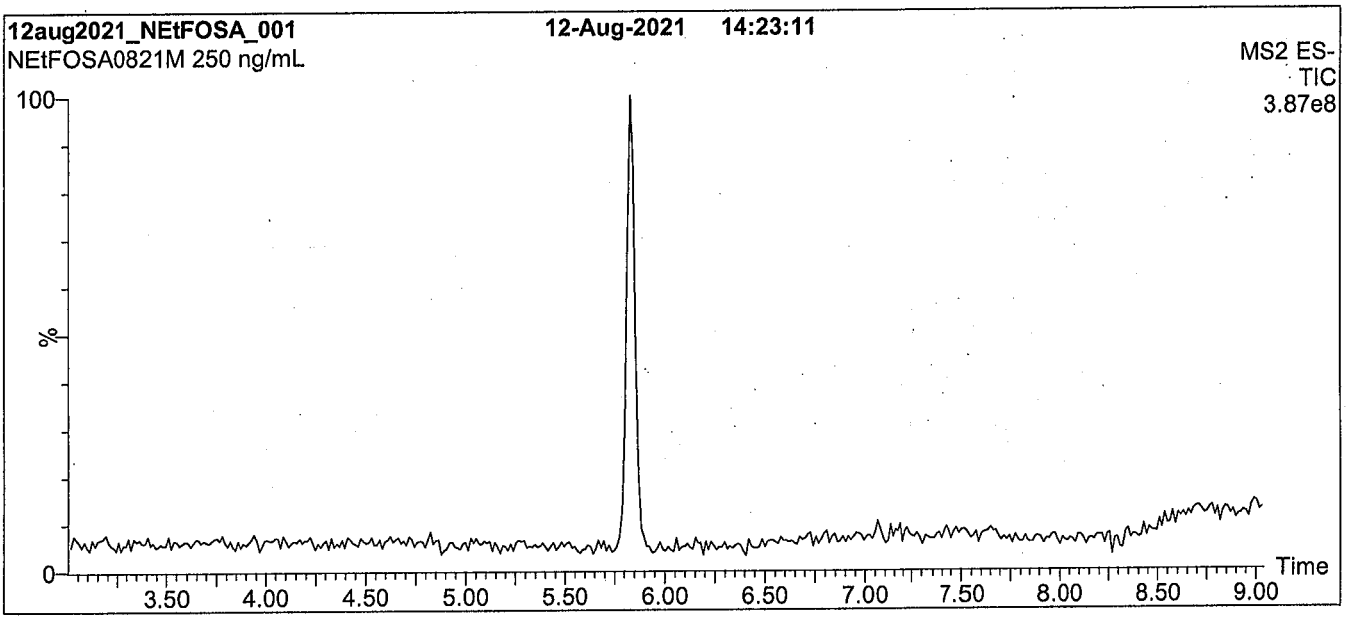
- See page 2 for further details.

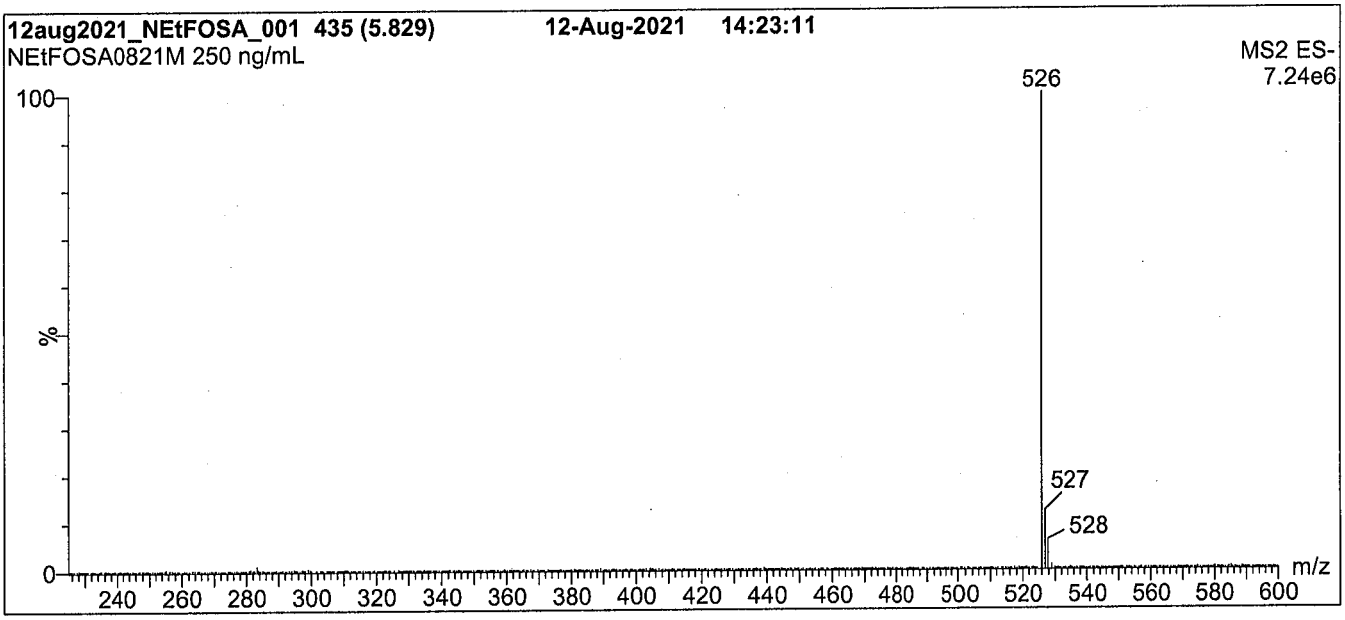
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/16/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Figure 1: **N-EtFOSA-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% H_2O / 70% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 1.00
Cone Voltage (V) = 44.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Analytical Standard Record

22C0313

Description:	PFAS - SAS NEtFOSA 50ug/mL	Expires:	08/12/2026
Standard Type:	Other	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: NEtFOSA0821M)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	08/17/2022 10:49 by LYA

Analyte	Parent	CAS Number	Concentration	Units
NEtFOSA		4151-50-2	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF 22F0058

Native Replacement PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

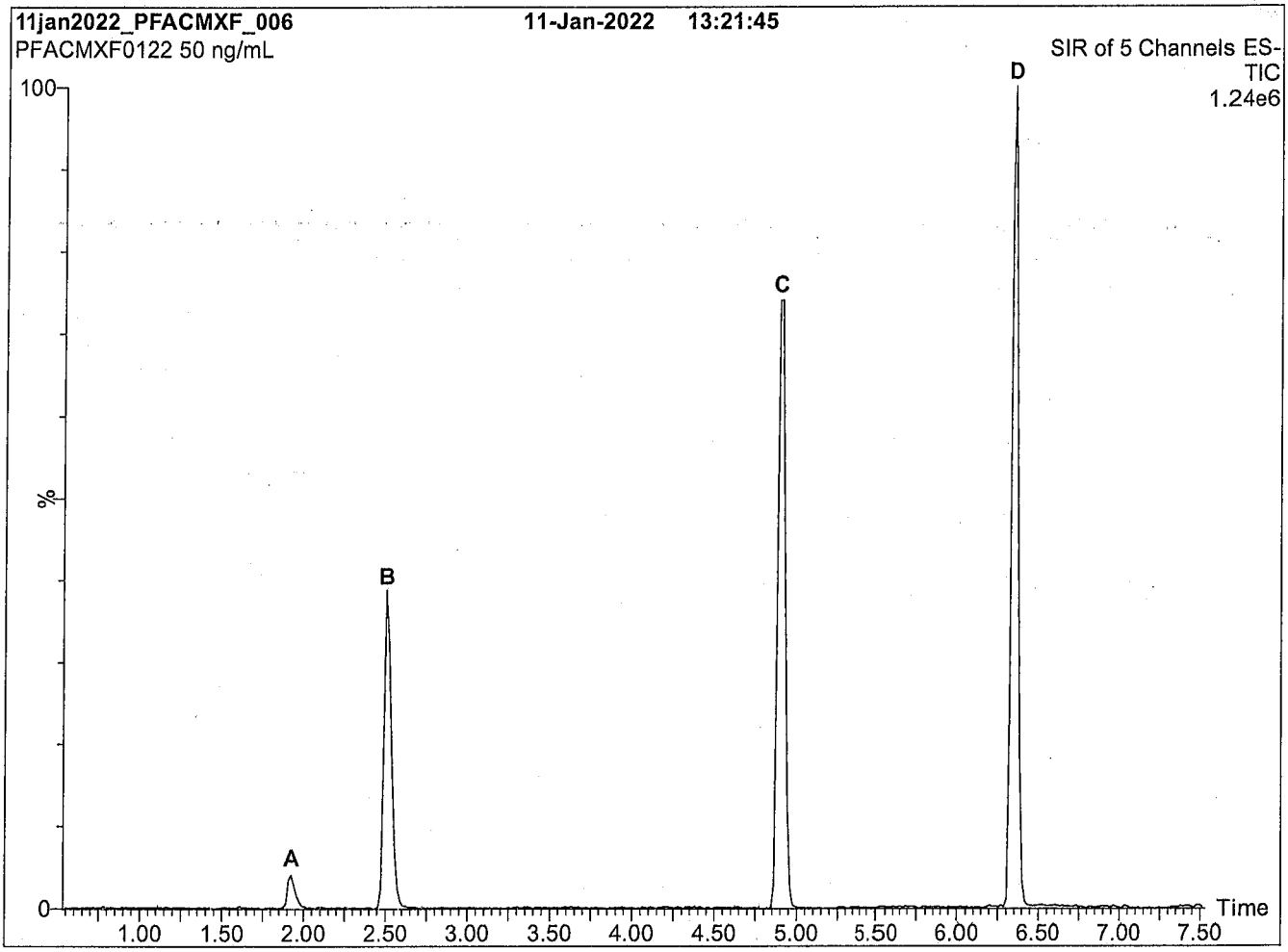
Table A: **PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))**

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 01/12/2022
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **PFAC-MXF; LC/MS Data (SIR)**



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

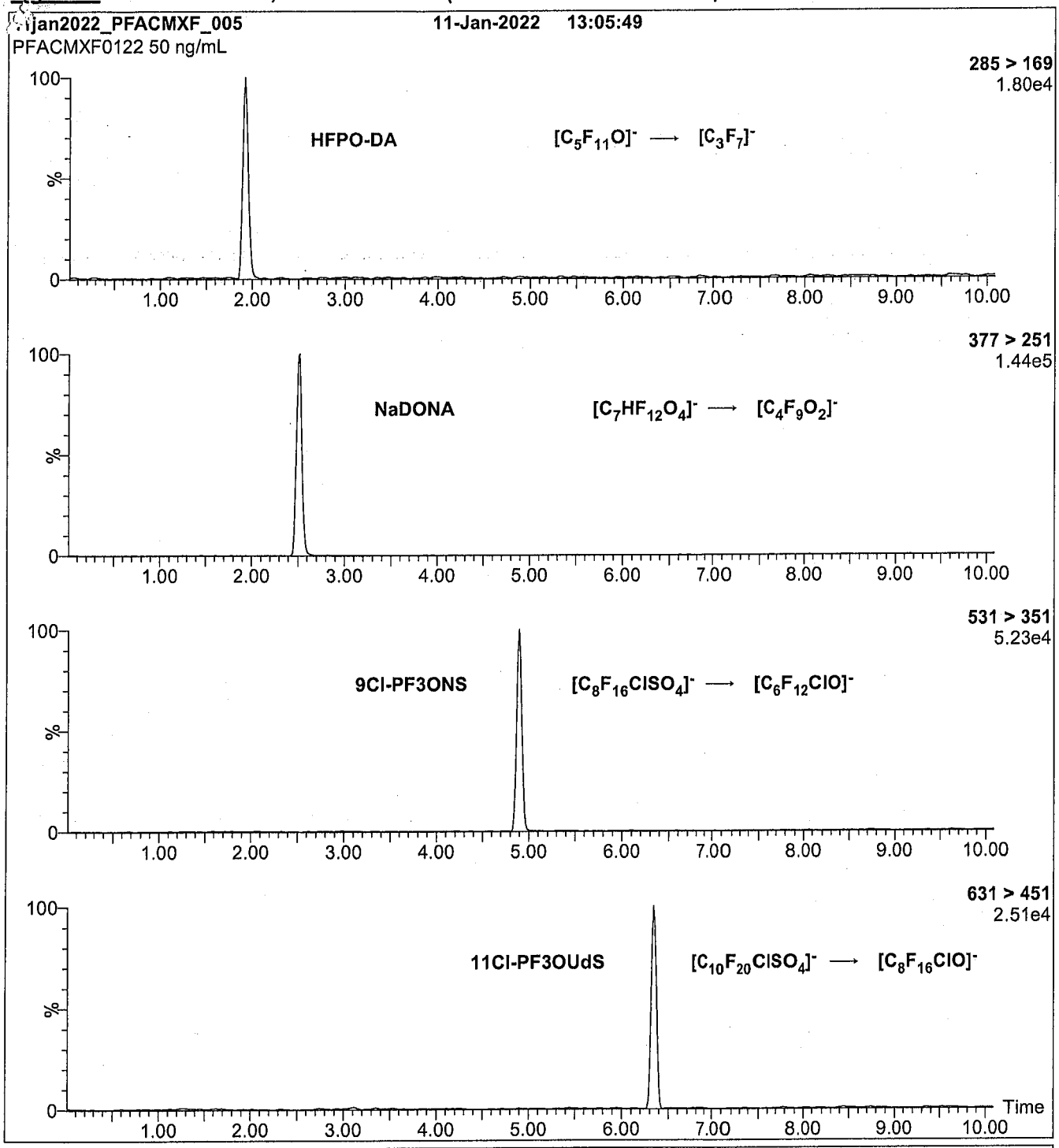
Flow: 300 µL/min

MS Parameters:

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = variable (15-74)
Desolvation Temperature (°C) = 325
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **PFAC-MXF; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFAC-MXF)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:
Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 6-60 (variable)

Analytical Standard Record

22F0058

Description:	PFAS - MIX MXF 2ug/mL	Expires:	01/11/2025
Standard Type:	Other	Prepared:	01/10/2022
Solvent:	MeOH	Prepared By:	Lizbeth Andres
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	09/15/2022 09:32 by DAG

Analyte	Parent	CAS Number	Concentration	Units
11CL-PF3OUDS		763051-92-9	1.89	ug/mL
9CL-PF3ONS		756426-58-1	1.87	ug/mL
ADONA		919005-14-4	1.89	ug/mL
HFPO-DA		13252-13-6	2	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH 22F0059

Native Per- and Poly-fluoroalkyl Substance Solution/Mixture

PRODUCT CODE:	PFAC-MXH
LOT NUMBER:	PFACMXH0921
SOLVENT(S):	Methanol / Isopropanol (2%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	09/09/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of eleven native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), eight native perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, C_{10} and C_{12} linear; C_6 and C_8 linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of br-NMeFOSAA
Table C: Isomeric Components and Percent Composition of br-NEtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **PFAC-MXH; Components and Concentrations (µg/mL, ± 5% in methanol / isopropanol (2%) / water (<1%))**

Compound	Acronym	Concentration* (µg/mL)		Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	4.00		1
Perfluoro-n-pentanoic acid	PFPeA	2.00		2
Perfluoro-n-hexanoic acid	PFHxA	1.00		5
Perfluoro-n-heptanoic acid	PFHpA	1.00		7
Perfluoro-n-octanoic acid	PFOA	1.00		11
Perfluoro-n-nonanoic acid	PFNA	1.00		14
Perfluoro-n-decanoic acid	PFDA	1.00		18
Perfluoro-n-undecanoic acid	PFUdA	1.00		23
Perfluoro-n-dodecanoic acid	PFDoA	1.00		26
Perfluoro-n-tridecanoic acid	PFTrDA	1.00		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1.00		29
Perfluoro-1-octanesulfonamide	FOSA	1.00		25
N-methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	0.760		20
	N-MeFOSAA: ∑ branched isomers	0.240		17
N-ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	0.775		22
	N-EtFOSAA: ∑ branched isomers	0.225		21
Compound	**Acronym**	**Concentration* (µg/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1.00	0.887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1.00	0.941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	0.811	0.741	9
	PFHxSK: ∑ branched isomers	0.189	0.173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1.00	0.953	12
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	0.788	0.732	15
	PFOSK: ∑ branched isomers	0.211	0.196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1.00	0.962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1.00	0.965	24
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1.00	0.970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4.00	3.75	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4.00	3.80	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4.00	3.84	16

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 09/23/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **br-NMeFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	N-methylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(CH_3)CH_2CO_2H$	76.0	76.0
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_3)CH_2CO_2H$	0.7	24.0
3	N-methylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(CH_3)CH_2CO_2H$	2.0	
4	N-methylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	6.0	
5	N-methylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(CH_3)CH_2CO_2H$	14.0	
6	N-methylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	0.2	
7	Other Unidentified Isomers		1.1	

* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

Table C: **br-NEtFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	N-ethylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2NCH_2CO_2H$ C_2H_5	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_2)_2SO_2NCH_2CO_2H$ CF_3 C_2H_5	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_2)_3SO_2NCH_2CO_2H$ CF_3 C_2H_5	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_2)_4SO_2NCH_2CO_2H$ CF_3 C_2H_5	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_2)_5SO_2NCH_2CO_2H$ CF_3 C_2H_5	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)(CF_2)_4SO_2NCH_2CO_2H$ CF_3 C_2H_5	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF(CF_2)_3SO_2NCH_2CO_2H$ CF_3 C_2H_5	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$CF_3CFCF_2CF(CF_3)(CF_2)_2SO_2NCH_2CO_2H$ CF_3 C_2H_5	0.3	
9	Other Unidentified Isomers		1.3	

* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

Table D: **PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FSO_3^-K^+$	2.9	18.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2SO_3^-K^+$	1.4	
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2CF_2SO_3^-K^+$	5.0	
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2CF_2CF_2SO_3^-K^+$	8.9	
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3\underset{\displaystyle CF_3}{\underset{\vert}{\overset{\displaystyle CF_3}{\overset{\vert}{C}}}}CF_2CF_2SO_3^-K^+$	0.2	
7	Other Unidentified Isomers		0.5	

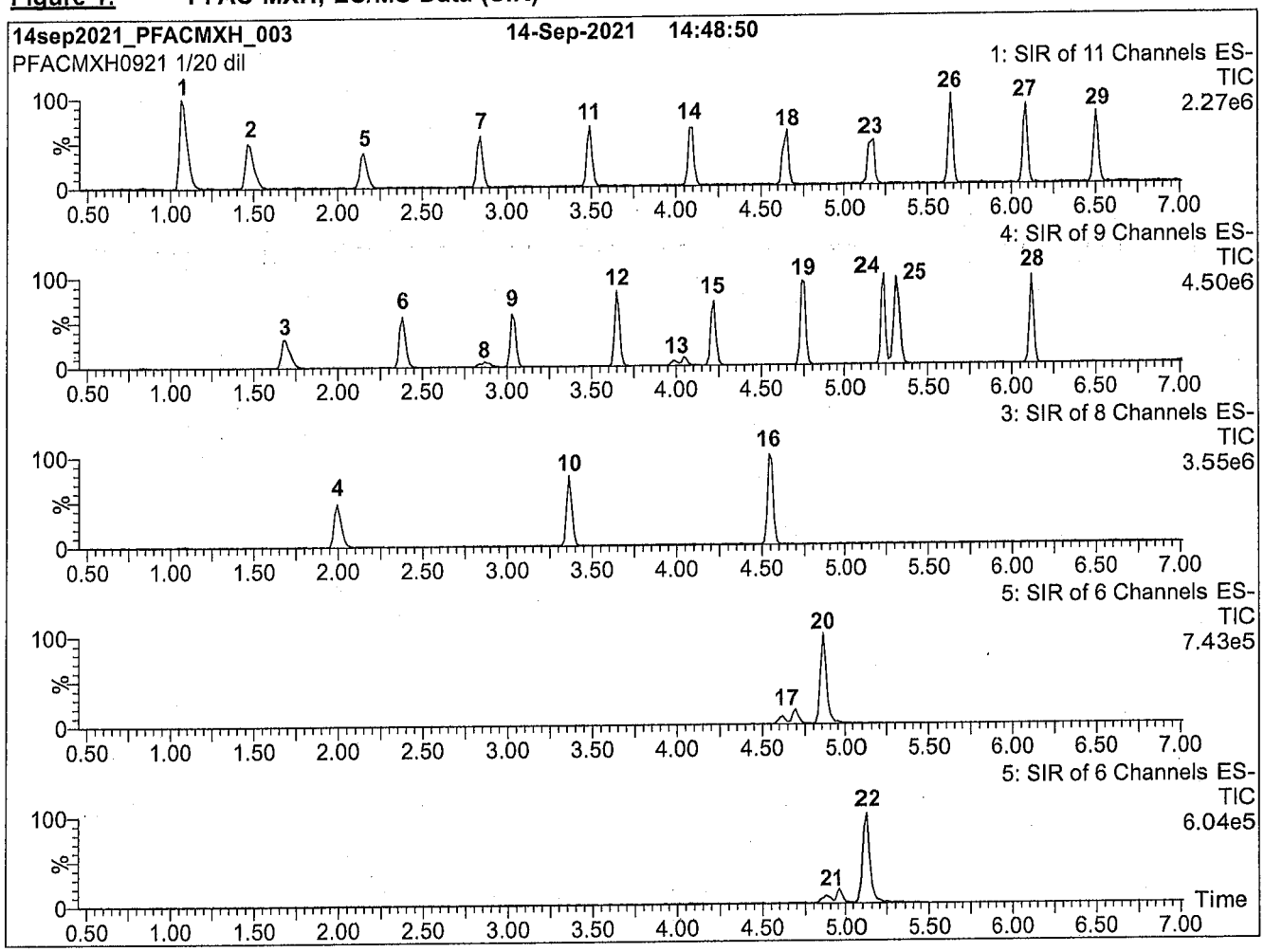
* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Table E: **PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6	
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9	
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0	
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3C(CF_3)_2CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2	
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)_2CF_2CF_2CF_2SO_3^-K^+$	0.03	
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07	

* Percent of total perfluorooctanesulfonate isomers only.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Figure 1: **PFAC-MXH; LC/MS Data (SIR)**



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 9 min and hold for 2 min
before returning to initial conditions in 1 min.
Time: 15 min

Flow: 300 µL/min

MS Parameters:

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = variable (2-74)
Desolvation Temperature (°C) = 350
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **PFAC-MXH; LC/MS/MS Data (Selected MRM Transitions)**

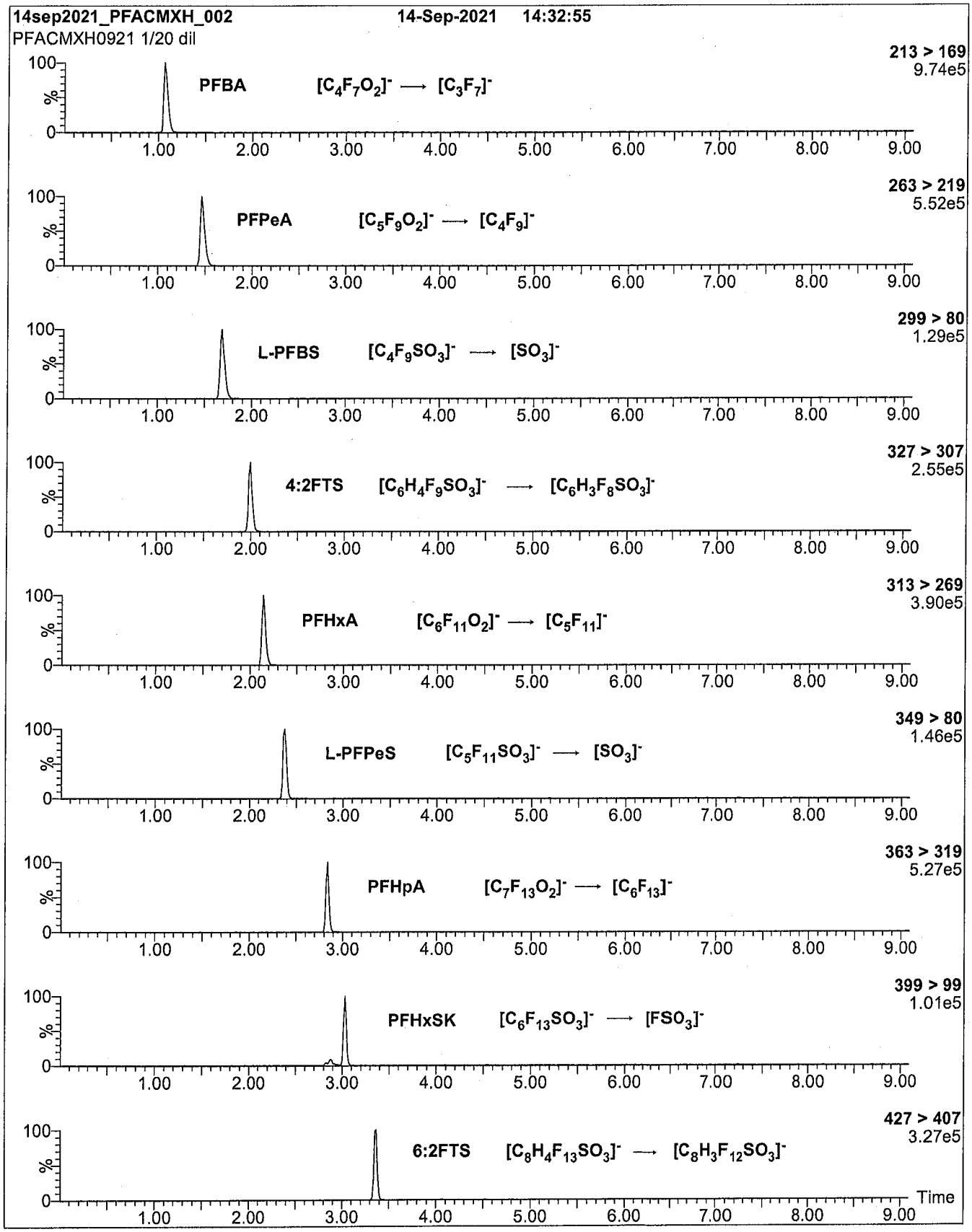


Figure 2: **PFAC-MXH; LC/MS/MS Data (Selected MRM Transitions)**

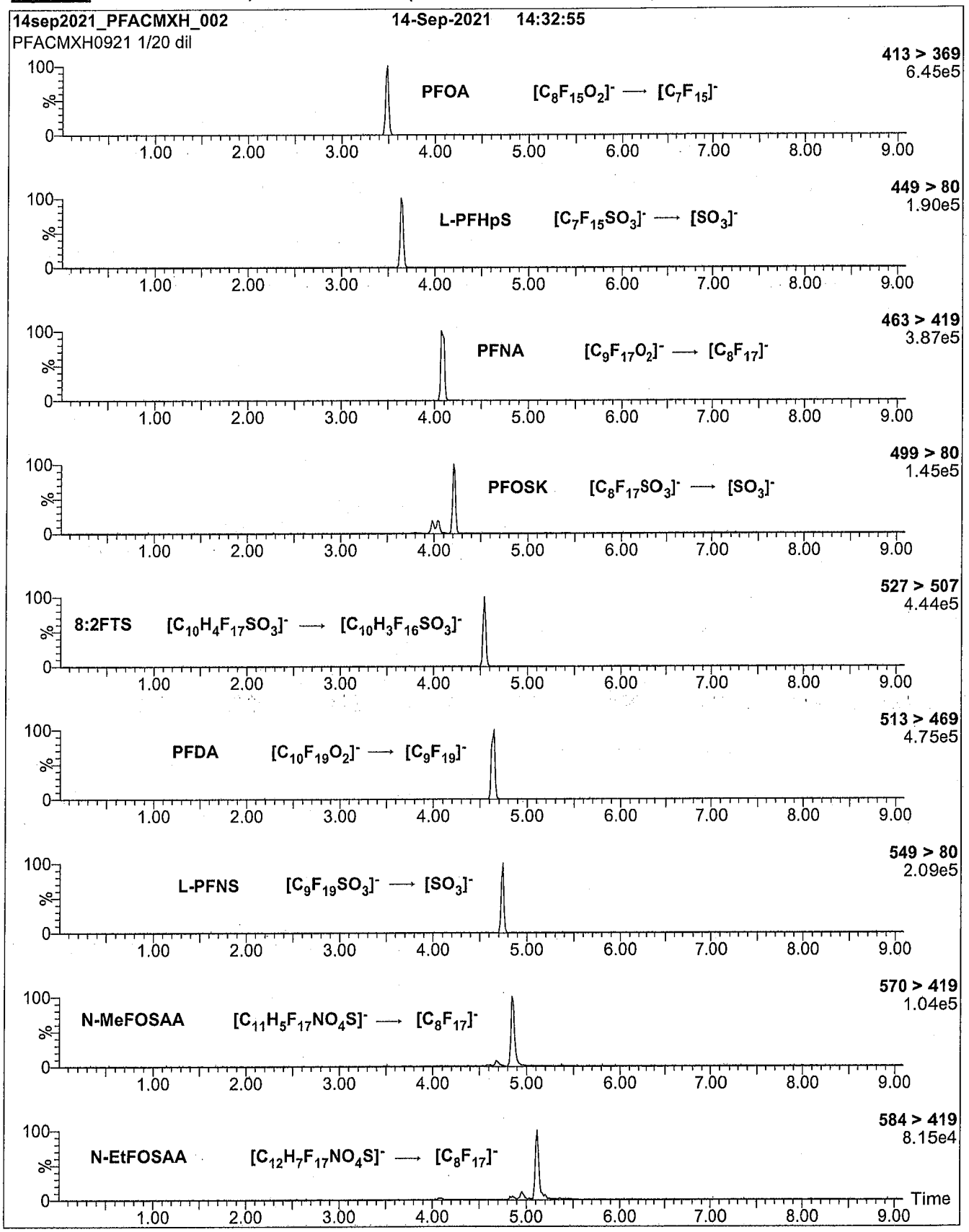
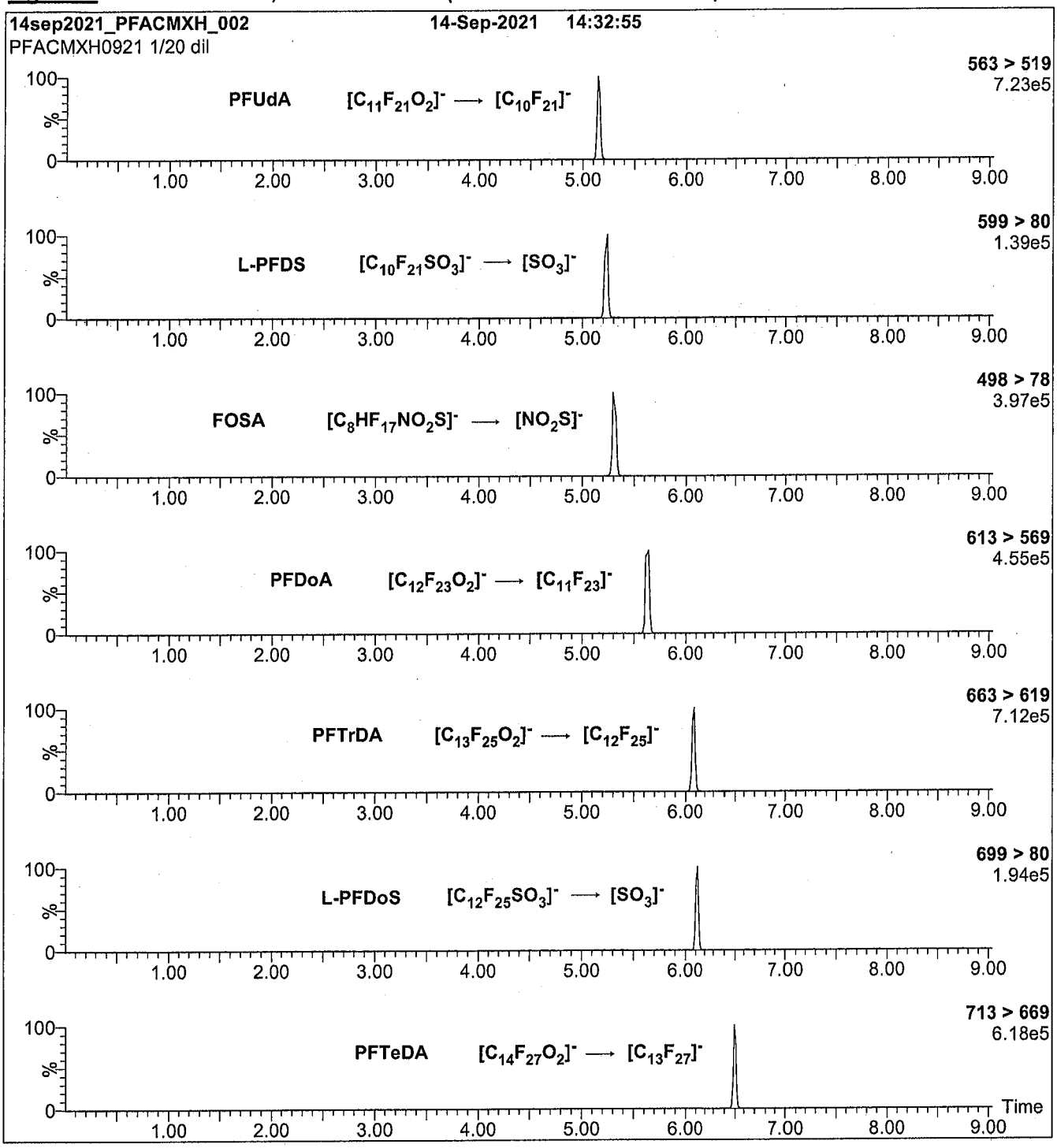


Figure 2: **PFAC-MXH; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFAC-MXH)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:
Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 6-60 (variable)

Analytical Standard Record

22F0059

Description:	PFAS - MIX MXH 2ug/mL	Expires:	09/14/2026
Standard Type:	Other	Prepared:	09/09/2021
Solvent:	MeOH	Prepared By:	Lizbeth Andres
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	09/15/2022 09:33 by DAG

Analyte	Parent	CAS Number	Concentration	Units
4:2FTS		757124-72-4	3.75	ug/mL
6:2FTS		27619-97-2	3.8	ug/mL
8:2FTS		39108-34-4	3.84	ug/mL
NEtFOSAA		2991-50-6	1	ug/mL
NMeFOSAA		2355-31-9	1	ug/mL
PFBA		375-22-4	4	ug/mL
PFBS		375-73-5	0.887	ug/mL
PFDA		335-76-2	1	ug/mL
PFDOA		307-55-1	1	ug/mL
PFDOS		79780-39-5	0.97	ug/mL
PFDS		335-77-3	0.965	ug/mL
PFHPA		375-85-9	1	ug/mL
PFHPS		375-92-8	0.953	ug/mL
PFHXA		307-24-4	1	ug/mL
PFHXS		355-46-4	0.914	ug/mL
PFNA		375-95-1	1	ug/mL
PFNS		68259-12-1	0.962	ug/mL
PFOA		335-67-1	1	ug/mL
PFOS		1763-23-1	0.928	ug/mL
PFOSA		754-91-6	1	ug/mL
PFPEA		2706-90-3	2	ug/mL
PFPES		630402-22-1	0.941	ug/mL
PFTEDA		376-06-7	1	ug/mL
PFTRDA		72629-94-8	1	ug/mL
PFUnA		2058-94-8	1	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG 22F0061

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

PRODUCT CODE:	PFAC-MXG
LOT NUMBER:	PFACMXG0222
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	02/07/2022
LAST TESTED: (mm/dd/yyyy)	02/22/2022
EXPIRY DATE: (mm/dd/yyyy)	02/22/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

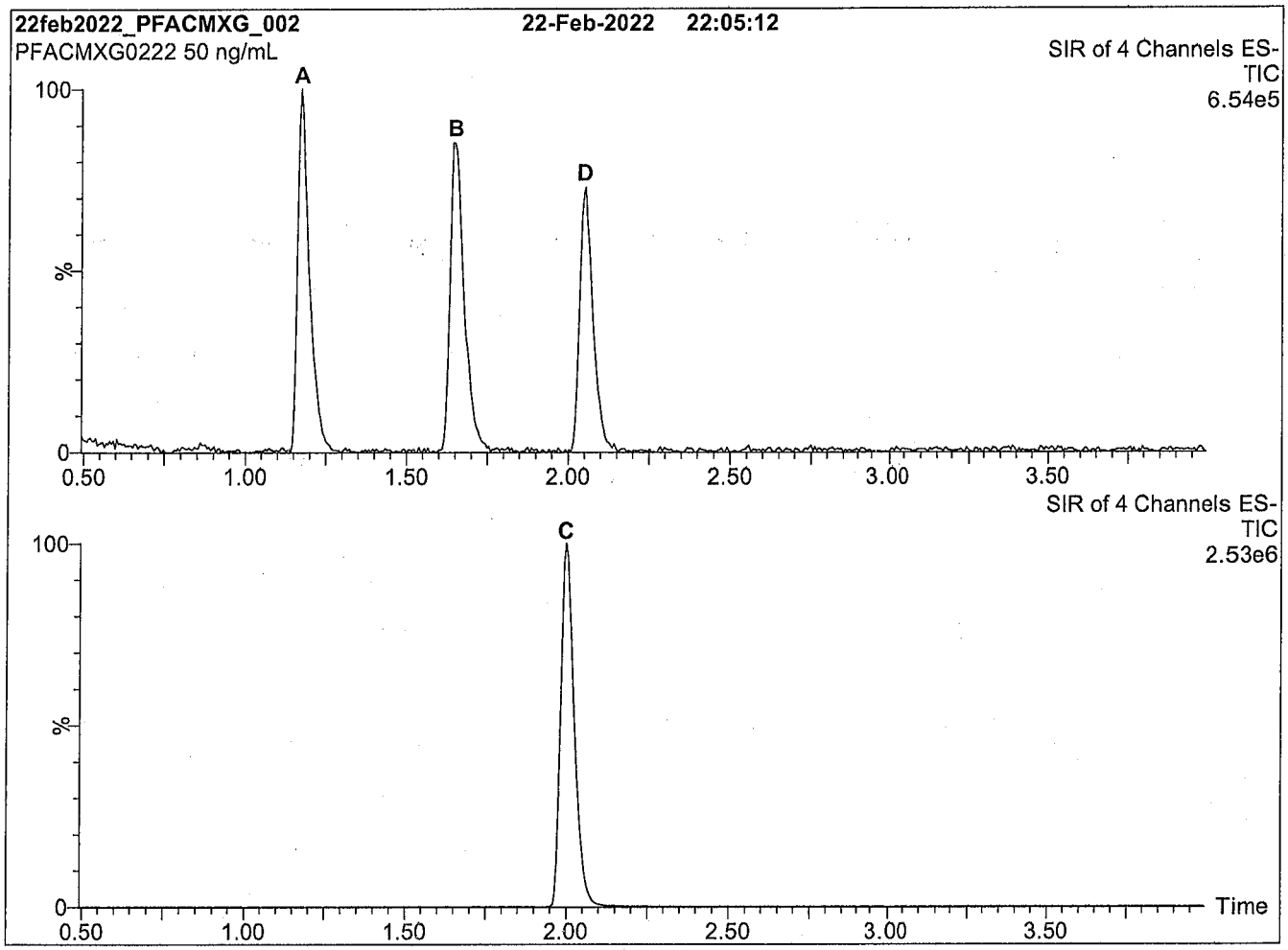
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 03/03/2022
(mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **PFAC-MXG; LC/MS Data (SIR)**



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

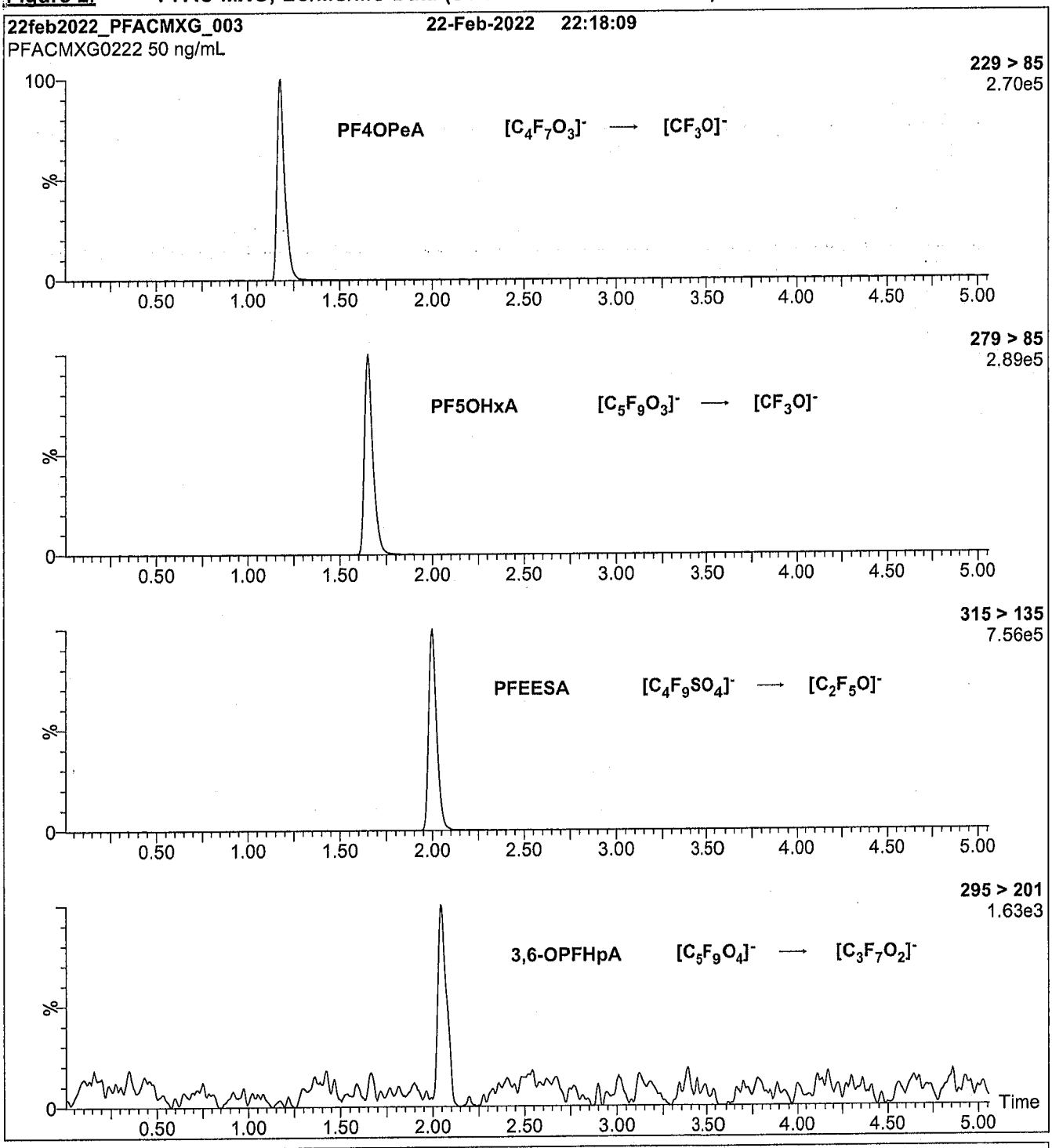
Flow: 300 µL/min

MS Parameters:

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 1.00
Cone Voltage (V) = variable (15-35)
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **PFAC-MXG; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFAC-MXG)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:
Collision Gas (mbar) = 3.33e-3
Collision Energy (eV) = 8-48 (variable)

Analytical Standard Record

22F0061

Description:	PFAS - MIX MXG 2ug/mL	Expires:	02/22/2027
Standard Type:	Other	Prepared:	02/07/2022
Solvent:	MeOH	Prepared By:	Lizbeth Andres
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	09/15/2022 09:34 by DAG
Comments:	contains NFHDA PFMBA PFMPA PFEESA @ 2ug/mL		

Analyte	Parent	CAS Number	Concentration	Units
NFDHA		151772-58-6	2	ug/mL
PFEESA		113507-82-7	1.78	ug/mL
PFMBA		863090-89-5	2	ug/mL
PFMPA		377-73-1	2	ug/mL

Reviewed By

Date

Analytical Standard Record

22F0445

Description:	TDCA 1000ug/mL	Expires:	09/19/2023
Standard Type:	Other	Prepared:	01/12/2022
Solvent:	62097	Prepared By:	Dipti Gokal
Final Volume (mls):	25	Department:	PFAS
Vials:	1	Last Edit:	11/14/2022 14:31 by DAG

Analyte	Parent	CAS Number	Concentration	Units
TAURODEOXYCHOLIC ACID	22A0123	516-50-7	1000	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0123	PFAS Taurodeoxycholic Acid, Sodium Salt neat	10/09/2021	Calbiochem	3761825	09/30/2023	06/22/2022 13:01	by DAG	25000

Reviewed By

Date

Analytical Standard Record

22F0446

Description:	TCDA 100ug/mL	Expires:	09/19/2023
Standard Type:	Other	Prepared:	01/13/2022
Solvent:	62097	Prepared By:	Dipti Gokal
Final Volume (mls):	3	Department:	PFAS
Vials:	1	Last Edit:	06/22/2022 13:05 by DAG

Analyte	Parent	CAS Number	Concentration	Units
TAURODEOXYCHOLIC ACID	22F0445	516-50-7	100	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22F0445	TCDA 1000ug/mL	01/12/2022	Calbiochem	3761825	09/19/2023	06/22/2022 13:05	by DAG	0.3

Reviewed By

Date

Analytical Standard Record

22I0153

Description:	PFAS - MIX 1633 200ng/mL	Expires:	01/11/2025
Standard Type:	Analyte Spike	Prepared:	09/13/2022
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	6	Department:	PFAS
Vials:	1	Last Edit:	09/15/2022 09:34 by DAG

Analyte	Parent	CAS Number	Concentration	Units
NMeFOSE	22C0307	24448-09-7	0.8	ug/mL
3:3FTCA	22C0308	113507-82-7	0.8	ug/mL
5:3FTCA	22C0309	914637-49-3	0.8	ug/mL
NEtFOSE	22C0310	1691-99-2	0.8	ug/mL
7:3FTCA	22C0311	812-70-4	0.8	ug/mL
NMeFOSA	22C0312	31506-32-8	0.8	ug/mL
NEtFOSA	22C0313	4151-50-2	0.8	ug/mL
11CL-PF3OUDS	22F0058	763051-92-9	0.378	ug/mL
9CL-PF3ONS	22F0058	756426-58-1	0.374	ug/mL
ADONA	22F0058	919005-14-4	0.378	ug/mL
HFPO-DA	22F0058	13252-13-6	0.4	ug/mL
4:2FTS	22F0059	757124-72-4	0.75	ug/mL
6:2FTS	22F0059	27619-97-2	0.76	ug/mL
8:2FTS	22F0059	39108-34-4	0.768	ug/mL
NEtFOSAA	22F0059	2991-50-6	0.2	ug/mL
NMeFOSAA	22F0059	2355-31-9	0.2	ug/mL
PFBA	22F0059	375-22-4	0.8	ug/mL
PFBS	22F0059	375-73-5	0.177	ug/mL
PFDA	22F0059	335-76-2	0.2	ug/mL
PFDOA	22F0059	307-55-1	0.2	ug/mL
PFDOS	22F0059	79780-39-5	0.194	ug/mL
PFDS	22F0059	335-77-3	0.193	ug/mL
PFHPA	22F0059	375-85-9	0.2	ug/mL
PFHPS	22F0059	375-92-8	0.191	ug/mL
PFHXA	22F0059	307-24-4	0.2	ug/mL
PFHXS	22F0059	355-46-4	0.183	ug/mL
PFNA	22F0059	375-95-1	0.2	ug/mL
PFNS	22F0059	68259-12-1	0.192	ug/mL
PFOA	22F0059	335-67-1	0.2	ug/mL
PFOS	22F0059	1763-23-1	0.186	ug/mL
PFOSA	22F0059	754-91-6	0.2	ug/mL
PFPEA	22F0059	2706-90-3	0.4	ug/mL
PFPES	22F0059	630402-22-1	0.188	ug/mL
PFTEDA	22F0059	376-06-7	0.2	ug/mL
PFTRDA	22F0059	72629-94-8	0.2	ug/mL
PFUnA	22F0059	2058-94-8	0.2	ug/mL
NFDHA	22F0061	151772-58-6	0.4	ug/mL
PFEESA	22F0061	113507-82-7	0.356	ug/mL
PFMBA	22F0061	863090-89-5	0.4	ug/mL
PFMPA	22F0061	377-73-1	0.4	ug/mL

Reviewed By

Date

Analytical Standard Record

22I0153

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22C0307	PFAS - SAS N-MeFOSE 50ug/mL	03/15/2022	Wellington Laboratories	NMeFOSE0921M	09/23/2026	03/15/2022 15:59	by DAG	0.096
22C0308	PFAS - SAS FPrPA 50ug/mL	03/15/2022	Wellington Laboratories	FPrPA0122	02/03/2027	03/15/2022 15:59	by DAG	0.096
22C0309	PFAS - SAS FPePA 50ug/mL	03/15/2022	Wellington Laboratories	FPePA1221	01/05/2027	03/15/2022 15:59	by DAG	0.096
22C0310	PFAS - SAS NEtFOSE 50ug/mL	03/15/2022	Wellington Laboratories	NEtFOSE0921M	09/23/2026	03/15/2022 15:59	by DAG	0.096
22C0311	PFAS - SAS FHpPA 50ug/mL	03/15/2022	Wellington Laboratories	HHpPA1020	11/12/2025	03/15/2022 16:00	by DAG	0.096
22C0312	PFAS - SAS NMeFOSA 50ug/mL	03/15/2022	Wellington Laboratories	NMeFOSA0721M	08/03/2026	03/15/2022 16:00	by DAG	0.096
22C0313	PFAS - SAS NEtFOSA 50ug/mL	03/15/2022	Wellington Laboratories	NEtFOSA0821M	08/12/2026	08/17/2022 10:49	by LYA	0.096
22F0058	PFAS - MIX MXF 2ug/mL	01/10/2022	Wellington Laboratories	PFACMXF0122	01/11/2025	09/15/2022 09:32	by DAG	1.2
22F0059	PFAS - MIX MXH 2ug/mL	09/09/2021	Wellington Laboratories	PFACMXH0921	09/14/2026	09/15/2022 09:33	by DAG	1.2
22F0061	PFAS - MIX MXG 2ug/mL	02/07/2022	Wellington Laboratories	PFACMXG0222	02/22/2027	09/15/2022 09:34	by DAG	1.2

Analytical Standard Record

22J0297

Description:	T-PFOA	Expires:	01/27/2027
Standard Type:	Other	Prepared:	01/27/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: TPFOA0122)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	10/18/2022 12:59 by HGH

Analyte	Parent	CAS Number	Concentration	Units
PFOA		335-67-1	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	T-PFOA	**LOT NUMBER:**	TPFOA0122
COMPOUND:	Ammonium perfluorooctanoate (Technical Grade)		
STRUCTURE:	(see Table A)	**CAS #:**	3825-26-1 (for linear ammonium perfluorooctanoate)
MOLECULAR FORMULA:	$C_8F_{15}O_2NH_4$		
CONCENTRATION:	50.0 ± 2.5 µg/mL (gravimetric)		
CHEMICAL PURITY:	Technical material		
SOLVENT(S):	Methanol/Water (<1%)		
LAST TESTED: (mm/dd/yyyy)	01/27/2022		
EXPIRY DATE: (mm/dd/yyyy)	01/27/2027		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)
Figure 4: LC/MS Elution Profile of the Perfluorooctanoic Acid Isomers

ADDITIONAL INFORMATION:

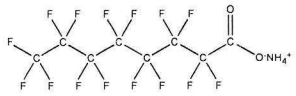
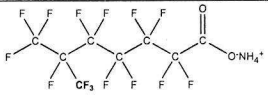
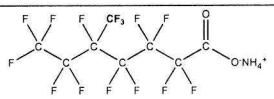
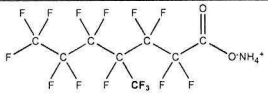
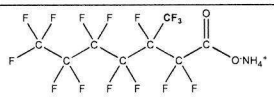
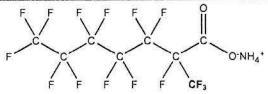
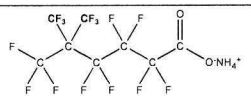
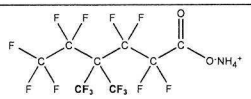
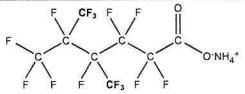
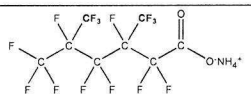
- See page 2 for further details.
- This technical mixture is >97% ammonium perfluorooctanoate (branched and linear isomers). The remaining 3% consists of common impurities such as the perfluoroheptanoic and perfluorohexanoic acids.
- It is recommended that this solution be used as a *qualitative or semi-quantitative standard only*.
- Contains 4 mole eq. of NaOH to prevent conversion of any carboxylic acids to their corresponding methyl esters.
- The molecular weight of perfluoro-n-octanoic acid is 414.07 g/mol.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/27/2022 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **T-PFOA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR
1	Ammonium perfluoro-n-octanoate		79
2	Ammonium 6-trifluoromethylperfluoroheptanoate		9.0
3	Ammonium 5-trifluoromethylperfluoroheptanoate		4.5
4	Ammonium 4-trifluoromethylperfluoroheptanoate		4.0
5	Ammonium 3-trifluoromethylperfluoroheptanoate		3.0
6	Ammonium 2-trifluoromethylperfluoroheptanoate		0.50
7	Ammonium 5,5-bis(trifluoromethyl)perfluorohexanoate		
8	Ammonium 4,4-bis(trifluoromethyl)perfluorohexanoate		
9	Ammonium 4,5-bis(trifluoromethyl)perfluorohexanoate		
10	Ammonium 3,5-bis(trifluoromethyl)perfluorohexanoate		

* Percent Composition was determined by ^{19}F-NMR. The percentages displayed are of total ammonium perfluorooctanoate isomers only (isomers are labelled in Figure 4).

Analytical Standard Record

22J0298

Description:	br-FOSA	Expires:	10/07/2027
Standard Type:	Other	Prepared:	09/14/2022
Solvent:	Isopropanol	Prepared By:	Wellington Laboratories (Lot#: br-FOSA0922)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	10/18/2022 13:03 by HGH

Analyte	Parent	CAS Number	Concentration	Units
PFOSA		754-91-6	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-FOSA

Perfluorooctanesulfonamide
Isomeric Mix

PRODUCT CODE:	br-FOSA
LOT NUMBER:	brFOSA0922
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Isopropanol
DATE PREPARED: (mm/dd/yyyy)	09/14/2022
LAST TESTED: (mm/dd/yyyy)	10/07/2022
EXPIRY DATE: (mm/dd/yyyy)	10/07/2027
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 754-91-6 (for linear isomer).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **br-FOSA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR
1	Perfluoro-1-octanesulfonamide	$CF_3(CF_2)_7SO_2NH_2$	66.6
2	Perfluoro-1-methyl-1-heptanesulfonamide**	$CF_3(CF_2)_5CF(CF_3)SO_2NH_2$	0.8
3	Perfluoro-2-methyl-1-heptanesulfonamide	$CF_3(CF_2)_4CF(CF_3)CF_2SO_2NH_2$	0.3
4	Perfluoro-3-methyl-1-heptanesulfonamide	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2NH_2$	4.2
5	Perfluoro-4-methyl-1-heptanesulfonamide	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2NH_2$	3.5
6	Perfluoro-5-methyl-1-heptanesulfonamide	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2NH_2$	7.8
7	Perfluoro-6-methyl-1-heptanesulfonamide	$CF_3CF(CF_3)(CF_2)_5SO_2NH_2$	16.8
8	Perfluoro-5,5-dimethyl-1-hexanesulfonamide	$CF_3C(CF_3)_2(CF_2)_4SO_2NH_2$	0.2

* Percent of total perfluorooctanesulfonamide isomers only.
** Systematic Name: Perfluoro-2-octanesulfonamide.

Certified By: _____ **Date:** 11/15/2022
(mm/dd/yyyy)
B.G. Chittim, General Manager

Analytical Standard Record

22J0298

Description:	br-FOSA	Expires:	10/07/2027
Standard Type:	Other	Prepared:	09/14/2022
Solvent:	Isopropanol	Prepared By:	Wellington Laboratories (Lot#: br-FOSA0922)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	10/18/2022 13:03 by HGH

Analyte	Parent	CAS Number	Concentration	Units
PFOSA		754-91-6	50	ug/mL

Reviewed By

Date

Analytical Standard Record

22J0301

Description:	br-NMeFOSA	Expires:	08/23/2027
Standard Type:	Other	Prepared:	08/23/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: brNMeFOSA0822)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	10/18/2022 13:37 by HGH

Analyte	Parent	CAS Number	Concentration	Units
NMeFOSA		31506-32-8	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-NMeFOSA

N-Methylperfluorooctanesulfonamide
Isomeric Mix

PRODUCT CODE:	br-NMeFOSA
LOT NUMBER:	brNMeFOSA0822
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	08/18/2022
LAST TESTED: (mm/dd/yyyy)	08/23/2022
EXPIRY DATE: (mm/dd/yyyy)	08/23/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **br-NMeFOSA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR
1	N-Methylperfluoro-1-octanesulfonamide	$CF_3(CF_2)_7SO_2NH$ $\vert$ CH_3	72.3
2	N-Methylperfluoro-3-methyl-1-heptanesulfonamide	$CF_3(CF_2)_3CF(CF_2)_2SO_2NH$ $\vert$ $\vert$ CF_3 CH_3	2.1
3	N-Methylperfluoro-4-methyl-1-heptanesulfonamide	$CF_3(CF_2)_2CF(CF_2)_3SO_2NH$ $\vert$ $\vert$ CF_3 CH_3	2.6
4	N-Methylperfluoro-5-methyl-1-heptanesulfonamide	$CF_3CF_2CF(CF_2)_4SO_2NH$ $\vert$ $\vert$ CF_3 CH_3	6.7
5	N-Methylperfluoro-6-methyl-1-heptanesulfonamide	$CF_3CF(CF_2)_5SO_2NH$ $\vert$ $\vert$ CF_3 CH_3	16.2
6	N-Methylperfluoro-5,5-dimethyl-1-hexanesulfonamide	CF_3 $\vert$ $CF_3C(CF_2)_4SO_2NH$ $\vert$ $\vert$ CF_3 CH_3	0.04

* Percent of total N-methylperfluorooctanesulfonamide isomers only.

Certified By: _____ **Date:** 11/15/2022
(mm/dd/yyyy)

B.G. Chittim, General Manager

Analytical Standard Record

22J0301

Description:	br-NMeFOSA	Expires:	08/23/2027
Standard Type:	Other	Prepared:	08/23/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: brNMeFOSA0822)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	10/18/2022 13:37 by HGH

Analyte	Parent	CAS Number	Concentration	Units
NMeFOSA		31506-32-8	50	ug/mL

Reviewed By

Date

Analytical Standard Record

22J0302

Description:	br-NEtFOSA	Expires:	10/07/2027
Standard Type:	Other	Prepared:	10/07/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: brNEtFOSA0922)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	10/18/2022 13:38 by HGH

Analyte	Parent	CAS Number	Concentration	Units
NEtFOSA		4151-50-2	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide
Isomeric Mix

PRODUCT CODE:	br-NEtFOSA
LOT NUMBER:	brNEtFOSA0922
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	08/23/2022
LAST TESTED: (mm/dd/yyyy)	10/07/2022
EXPIRY DATE: (mm/dd/yyyy)	10/07/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **br-NEtFOSA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR
1	N-Ethylperfluoro-1-octanesulfonamide	$CF_3(CF_2)_7SO_2NH$ CH_2CH_3	73.8
2	N-Ethylperfluoro-1-methyl-1-heptanesulfonamide**	$CF_3(CF_2)_5CFSO_2NH$ CF_3 CH_2CH_3	0.1
3	N-Ethylperfluoro-3-methyl-1-heptanesulfonamide	$CF_3(CF_2)_3CF(CF_2)_2SO_2NH$ CF_3 CH_2CH_3	2.3
4	N-Ethylperfluoro-4-methyl-1-heptanesulfonamide	$CF_3(CF_2)_2CF(CF_2)_3SO_2NH$ CF_3 CH_2CH_3	2.6
5	N-Ethylperfluoro-5-methyl-1-heptanesulfonamide	$CF_3CF_2CF(CF_2)_4SO_2NH$ CF_3 CH_2CH_3	6.2
6	N-Ethylperfluoro-6-methyl-1-heptanesulfonamide	$CF_3CF(CF_2)_5SO_2NH$ CF_3 CH_2CH_3	14.8
7	N-Ethylperfluoro-5,5-dimethyl-1-hexanesulfonamide	CF_3 $CF_3C(CF_2)_4SO_2NH$ CF_3 CH_2CH_3	0.2

* Percent of total N-ethylperfluorooctanesulfonamide isomers only.
** Systematic Name: N-Ethylperfluoro-2-octanesulfonamide.

Certified By: ____________
B.G. Chittim, General Manager

Date: 11/15/2022
(mm/dd/yyyy)

Analytical Standard Record

22J0303

Description:	br-NMeFOSE	Expires:	10/07/2027
Standard Type:	Other	Prepared:	10/07/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: brNMeFOSE0922)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	10/18/2022 13:41 by HGH

Analyte	Parent	CAS Number	Concentration	Units
NEtFOSE		1691-99-2	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE:	br-NMeFOSE
LOT NUMBER:	brNMeFOSE0922
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/02/2022
LAST TESTED: (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS)
	10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy)	10/07/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS Data (SIR)
Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **br-NMeFOSE; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR
1	2-(N-Methylperfluoro-1-octanesulfonamido)ethanol	$CF_3(CF_2)_7SO_2N(CH_3)CH_2CH_2OH$	67.6
2	2-(N-Methylperfluoro-3-methyl-1-heptanesulfonamido)ethanol	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_3)CH_2CH_2OH$	3.9
3	2-(N-Methylperfluoro-4-methyl-1-heptanesulfonamido)ethanol	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(CH_3)CH_2CH_2OH$	3.2
4	2-(N-Methylperfluoro-5-methyl-1-heptanesulfonamido)ethanol	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(CH_3)CH_2CH_2OH$	7.7
5	2-(N-Methylperfluoro-6-methyl-1-heptanesulfonamido)ethanol	$CF_3CF(CF_3)(CF_2)_5SO_2N(CH_3)CH_2CH_2OH$	17.5
6	2-(N-Methylperfluoro-5,5-dimethyl-1-hexanesulfonamido)ethanol	$CF_3C(CF_3)_2(CF_2)_4SO_2N(CH_3)CH_2CH_2OH$	0.2

* Percent of total 2-(N-methylperfluorooctanesulfonamido)ethanol isomers only.

Certified By: _____ **Date:** 11/14/2022
(mm/dd/yyyy)
B.G. Chittim, General Manager

Analytical Standard Record

22J0304

Description:	br-NEtFOSE	Expires:	10/07/2027
Standard Type:	Other	Prepared:	10/07/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: brNEtFOSE1022)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	10/18/2022 13:43 by HGH

Analyte	Parent	CAS Number	Concentration	Units
NEtFOSE		1691-99-2	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-NEtFOSE

2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix

PRODUCT CODE:	br-NEtFOSE
LOT NUMBER:	brNEtFOSE1022
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/12/2022
LAST TESTED: (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS)
	10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy)	10/07/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS Data (SIR)
Figure 4: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **br-NEtFOSE; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR
1	2-(N-Ethylperfluoro-1-octanesulfonamido)ethanol	$CF_3(CF_2)_7SO_2N(CH_2CH_3)CH_2CH_2OH$	64.6
2	2-(N-Ethylperfluoro-2-methyl-1-heptanesulfonamido)ethanol	$CF_3(CF_2)_4CF(CF_3)CF_2SO_2N(CH_2CH_3)CH_2CH_2OH$	0.2
3	2-(N-Ethylperfluoro-3-methyl-1-heptanesulfonamido)ethanol	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_2CH_3)CH_2CH_2OH$	4.1
4	2-(N-Ethylperfluoro-4-methyl-1-heptanesulfonamido)ethanol	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(CH_2CH_3)CH_2CH_2OH$	4.3
5	2-(N-Ethylperfluoro-5-methyl-1-heptanesulfonamido)ethanol	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(CH_2CH_3)CH_2CH_2OH$	8.8
6	2-(N-Ethylperfluoro-6-methyl-1-heptanesulfonamido)ethanol	$CF_3CF(CF_3)(CF_2)_5SO_2N(CH_2CH_3)CH_2CH_2OH$	17.8
7	2-(N-Ethylperfluoro-5,5-dimethyl-1-hexanesulfonamido)ethanol	$CF_3C(CF_3)_2(CF_2)_4SO_2N(CH_2CH_3)CH_2CH_2OH$	0.3

* Percent of total 2-(N-ethylperfluorooctanesulfonamido)ethanol isomers only.

Certified By: _____ **Date:** 11/14/2022
(mm/dd/yyyy)
B.G. Chittim, General Manager

Analytical Standard Record

22J0420

Description:	PFAS RES-MIX 1000ng/mL	Expires:	04/24/2023
Standard Type:	Other	Prepared:	10/26/2022
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	10/26/2022 10:16 by HGH

Analyte	Parent	CAS Number	Concentration	Units
PFOA	22J0297	335-67-1	1	ug/mL
PFOSA	22J0298	754-91-6	1	ug/mL
NMeFOSA	22J0301	31506-32-8	1	ug/mL
NEtFOSA	22J0302	4151-50-2	1	ug/mL
NMeFOSE	22J0303	24448-09-7	1	ug/mL
NEtFOSE	22J0304	1691-99-2	1	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22J0297	T-PFOA	01/27/2022	Wellington Laboratories	TPFOA0122	01/27/2027	10/18/2022 12:59	by HGH	0.02
22J0298	br-FOSA	09/14/2022	Wellington Laboratories	br-FOSA0922	10/07/2027	10/18/2022 13:03	by HGH	0.02
22J0301	br-NMeFOSA	08/23/2022	Wellington Laboratories	beNMeFOSA0822	08/23/2027	10/18/2022 13:37	by HGH	0.02
22J0302	br-NEtFOSA	10/07/2022	Wellington Laboratories	beNEtFOSA0922	10/07/2027	10/18/2022 13:38	by HGH	0.02
22J0303	br-NMeFOSE	10/07/2022	Wellington Laboratories	beNMeFOSE0922	10/07/2027	10/26/2022 10:16	by HGH	0.02
22J0304	br-NEtFOSE	10/07/2022	Wellington Laboratories	beNEtFOSE1022	10/07/2027	10/18/2022 13:43	by HGH	0.02

Reviewed By

Date

Analytical Standard Record

22J0448

Description:	PFAS - MIX 1633 20ng/mL	Expires:	04/25/2023
Standard Type:	Analyte Spike	Prepared:	10/27/2022
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	10	Department:	PFAS
Vials:	1	Last Edit:	10/27/2022 08:51 by DAG

Analyte	Parent	CAS Number	Concentration	Units
11CL-PF3OUDS	22I0153	763051-92-9	0.0378	ug/mL
3:3FTCA	22I0153	113507-82-7	0.08	ug/mL
4:2FTS	22I0153	757124-72-4	0.075	ug/mL
5:3FTCA	22I0153	914637-49-3	0.08	ug/mL
6:2FTS	22I0153	27619-97-2	0.076	ug/mL
7:3FTCA	22I0153	812-70-4	0.08	ug/mL
8:2FTS	22I0153	39108-34-4	0.0768	ug/mL
9CL-PF3ONS	22I0153	756426-58-1	0.0374	ug/mL
ADONA	22I0153	919005-14-4	0.0378	ug/mL
HFPO-DA	22I0153	13252-13-6	0.04	ug/mL
NEtFOSA	22I0153	4151-50-2	0.08	ug/mL
NEtFOSAA	22I0153	2991-50-6	0.02	ug/mL
NEtFOSE	22I0153	1691-99-2	0.08	ug/mL
NFDHA	22I0153	151772-58-6	0.04	ug/mL
NMeFOSA	22I0153	31506-32-8	0.08	ug/mL
NMeFOSAA	22I0153	2355-31-9	0.02	ug/mL
NMeFOSE	22I0153	24448-09-7	0.08	ug/mL
PFBA	22I0153	375-22-4	0.08	ug/mL
PFBS	22I0153	375-73-5	0.0177	ug/mL
PFDA	22I0153	335-76-2	0.02	ug/mL
PFDOA	22I0153	307-55-1	0.02	ug/mL
PFDOS	22I0153	79780-39-5	0.0194	ug/mL
PFDS	22I0153	335-77-3	0.0193	ug/mL
PFEESA	22I0153	113507-82-7	0.0356	ug/mL
PFHPA	22I0153	375-85-9	0.02	ug/mL
PFHPS	22I0153	375-92-8	0.0191	ug/mL
PFHXA	22I0153	307-24-4	0.02	ug/mL
PFHXS	22I0153	355-46-4	0.0183	ug/mL
PFMBA	22I0153	863090-89-5	0.04	ug/mL
PFMPA	22I0153	377-73-1	0.04	ug/mL
PFNA	22I0153	375-95-1	0.02	ug/mL
PFNS	22I0153	68259-12-1	0.0192	ug/mL
PFOA	22I0153	335-67-1	0.02	ug/mL
PFOS	22I0153	1763-23-1	0.0186	ug/mL
PFOSA	22I0153	754-91-6	0.02	ug/mL
PFPEA	22I0153	2706-90-3	0.04	ug/mL
PFPES	22I0153	630402-22-1	0.0188	ug/mL
PFTEDA	22I0153	376-06-7	0.02	ug/mL
PFTRDA	22I0153	72629-94-8	0.02	ug/mL
PFUnA	22I0153	2058-94-8	0.02	ug/mL

Reviewed By

Date

Analytical Standard Record

22J0448

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22I0153	PFAS - MIX 1633 200ng/mL	09/13/2022	In house	x	01/11/2025	09/15/2022 09:34	by DAG	1

Analytical Standard Record

23A0022

Description:	PFOS 0.4mg/ml	Expires:	07/03/2023
Standard Type:	Other	Prepared:	01/04/2023
Solvent:	62097	Prepared By:	Dipti Gokal
Final Volume (mls):	40	Department:	PFAS
Vials:	1	Last Edit:	01/04/2023 11:14 by DAG

Analyte	Parent	CAS Number	Concentration	Units
PFOS	23A0024	1763-23-1	400	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
23A0024	PFOS 40%	01/04/2023	Sigma-Aldrich	0000100807	11/10/2023	01/04/2023 11:14	by DAG	0.04

Reviewed By

Date

Analytical Standard Record

23A0024

Description:	PFOS 40%	Expires:	11/10/2023
Standard Type:	Other	Prepared:	01/04/2023
Solvent:	methanol 77283	Prepared By:	Dipti Gokal
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	01/04/2023 11:14 by DAG
Comments:	neat-77283		

Analyte	Parent	CAS Number	Concentration	Units
PFOS		1763-23-1	400000	ug/g

Reviewed By

Date

Analytical Standard Record

23A0025

Description:	PFOS 0.4ug/ml	Expires:	07/03/2023
Standard Type:	Other	Prepared:	01/04/2023
Solvent:	62097	Prepared By:	Dipti Gokal
Final Volume (mls):	40	Department:	PFAS
Vials:	1	Last Edit:	01/04/2023 11:18 by DAG

Analyte	Parent	CAS Number	Concentration	Units
PFOS	23A0022	1763-23-1	0.4	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
23A0022	PFOS 0.4mg/ml	01/04/2023	In house	3761825	07/03/2023	01/04/2023 11:14	by DAG	0.04

Reviewed By

Date

Analytical Standard Record

23A0025

Description:	PFOS 0.4ug/ml	Expires:	07/03/2023
Standard Type:	Other	Prepared:	01/04/2023
Solvent:	62097	Prepared By:	Dipti Gokal
Final Volume (mls):	40	Department:	PFAS
Vials:	1	Last Edit:	01/04/2023 11:18 by DAG

Analyte	Parent	CAS Number	Concentration	Units
PFOS	23A0022	1763-23-1	0.4	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
23A0022	PFOS 0.4mg/ml	01/04/2023	In house	3761825	07/03/2023	01/04/2023 11:14	by DAG	0.04

Reviewed By

Date

Analytical Standard Record

23A0201

Description:	PFAS - MIX MXG 2 ug/mL	Expires:	12/01/2027
Standard Type:	Other	Prepared:	11/30/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: PFACMXG1122)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/11/2023 14:56 by PAF
Lot Number:	PFACMXG1122		

Analyte	Parent	CAS Number	Concentration	Units
NFDHA		151772-58-6	2	ug/mL
PFEESA		113507-82-7	1.78	ug/mL
PFMBA		863090-89-5	2	ug/mL
PFMPA		377-73-1	2	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

PRODUCT CODE:	PFAC-MXG
LOT NUMBER:	PFACMXG1122
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	11/30/2022
LAST TESTED: (mm/dd/yyyy)	12/01/2022
EXPIRY DATE: (mm/dd/yyyy)	12/01/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 12/09/2022
(mm/dd/yyyy)
B.G. Chittim, General Manager

Analytical Standard Record

23A0205

Description:	PFAS - MIX MXF 2 ug/mL	Expires:	01/11/2025
Standard Type:	Other	Prepared:	01/10/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: PFACMXF0122)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/11/2023 14:59 by PAF
Lot Number:	PFACMXF0122		

Analyte	Parent	CAS Number	Concentration	Units
11CL-PF3OUDS		763051-92-9	1.89	ug/mL
9CL-PF3ONS		756426-58-1	1.87	ug/mL
ADONA		919005-14-4	1.89	ug/mL
HFPO-DA		13252-13-6	2	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXF

Native Replacement PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))**

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 01/12/2022
(mm/dd/yyyy)
B.G. Chittim, General Manager

Analytical Standard Record

23A0207

Description:	PFAS - MIX MXH 1 ug/mL	Expires:	08/08/2027
Standard Type:	Other	Prepared:	08/05/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: PFACMXH0822)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/11/2023 15:06 by PAF
Lot Number:	PFACMXH0822		

Analyte	Parent	CAS Number	Concentration	Units
4:2FTS		757124-72-4	3.75	ug/mL
6:2FTS		27619-97-2	3.8	ug/mL
8:2FTS		39108-34-4	3.84	ug/mL
NEtFOSAA		2991-50-6	1	ug/mL
NMeFOSAA		2355-31-9	1	ug/mL
PFBA		375-22-4	4	ug/mL
PFBS		375-73-5	0.887	ug/mL
PFDA		335-76-2	1	ug/mL
PFDOA		307-55-1	1	ug/mL
PFDOS		79780-39-5	0.97	ug/mL
PFDS		335-77-3	0.965	ug/mL
PFHPA		375-85-9	1	ug/mL
PFHPS		375-92-8	0.953	ug/mL
PFHXA		307-24-4	1	ug/mL
PFHXS		355-46-4	0.914	ug/mL
PFNA		375-95-1	1	ug/mL
PFNS		68259-12-1	0.962	ug/mL
PFOA		335-67-1	1	ug/mL
PFOS		1763-23-1	0.928	ug/mL
PFOSA		754-91-6	1	ug/mL
PFPEA		2706-90-3	2	ug/mL
PFPES		630402-22-1	0.941	ug/mL
PFTEDA		376-06-7	1	ug/mL
PFTRDA		72629-94-8	1	ug/mL
PFUnA		2058-94-8	1	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXH
LOT NUMBER:	PFACMXH0822
SOLVENT(S):	Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	08/05/2022
LAST TESTED: (mm/dd/yyyy)	08/08/2022
EXPIRY DATE: (mm/dd/yyyy)	08/08/2027
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), eight native perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, C_{10} and C_{12} linear; C_6 and C_8 linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of N-MeFOSAA
Table C: Isomeric Components and Percent Composition of N-EtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **PFAC-MXH; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))**

Compound	Acronym	Concentration* (ng/mL)	Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	4000	1
Perfluoro-n-pentanoic acid	PFPeA	2000	2
Perfluoro-n-hexanoic acid	PFHxA	1000	5
Perfluoro-n-heptanoic acid	PFHpA	1000	7
Perfluoro-n-octanoic acid	PFOA	1000	11
Perfluoro-n-nonanoic acid	PFNA	1000	14
Perfluoro-n-decanoic acid	PFDA	1000	18
Perfluoro-n-undecanoic acid	PFUdA	1000	24
Perfluoro-n-dodecanoic acid	PFDoA	1000	26
Perfluoro-n-tridecanoic acid	PFTrDA	1000	27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000	29
Perfluoro-1-octanesulfonamide	FOSA	1000	23
N-methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	760	20
	N-MeFOSAA: ∑ branched isomers	240	17
N-ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	775	22
	N-EtFOSAA: ∑ branched isomers	225	21

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 08/09/2022 (mm/dd/yyyy)

B.G. Chittim, General Manager

Analytical Standard Record

23A0390

Description:	MPFAC-HIF-ES-EIS	Expires:	11/23/2025
Standard Type:	Other	Prepared:	10/28/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: MPFACHIFES1022)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/23/2023 15:26 by ABK
Lot Number:	MPFACHIFES1022		

Analyte	Parent	CAS Number	Concentration	Units
13C2-4:2FTS		13C2-4:2FTS	1	ug/mL
13C2-6:2FTS		13C2-6:2FTS	1	ug/mL
13C2-8:2FTS		13C2-8:2FTS	1	ug/mL
13C2-PFDOA		13C2-PFDOA	0.25	ug/mL
13C2-PFTEDA		13C2-PFTEDA	0.25	ug/mL
13C3-HFPO-DA		13C3-HFPO-DA	2	ug/mL
13C3-PFBS		13C3-PFBS	0.5	ug/mL
13C3-PFHXS		13C3-PFHXS	0.5	ug/mL
13C4-PFBA		13C4-PFBA	2	ug/mL
13C4-PFHPA		13C4-PFHPA	0.5	ug/mL
13C5-PFHXA		13C5-PFHXA	0.5	ug/mL
13C5-PFPEA		13C5-PFPEA	1	ug/mL
13C6-PFDA		13C6-PFDA	0.25	ug/mL
13C7-PFUnA		13C7-PFUDA	0.25	ug/mL
13C8-PFOA		13C8-PFOA	0.5	ug/mL
13C8-PFOS		13C8-PFOS	0.5	ug/mL
13C8-PFOSA		13C8-PFOSA	0.5	ug/mL
13C9-PFNA		13C9-PFNA	0.25	ug/mL
D3-NMEFOSA		D3-NMEFOSA	0.5	ug/mL
D3-NMEFOSAA		D3-NMEFOSAA	1	ug/mL
D5-NETFOSA		D5-NETFOSA	0.5	ug/mL
D5-NETFOSAA		D5-NETFOSAA	1	ug/mL
D7-NMEFOSE		D7-NMEFOSE	5	ug/mL
D9-NETFOSE		D9-NETFOSE	5	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE:	MPFAC-HIF-ES
LOT NUMBER:	MPFACHIFES1022
SOLVENT(S):	Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	10/28/2022
LAST TESTED: (mm/dd/yyyy)	11/23/2022
EXPIRY DATE: (mm/dd/yyyy)	11/23/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4-C_{12}, C_{14}), three mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4, C_6, and C_8), three mass-labelled (one ^{13}C and two ^{2}H) perfluoro-1-octanesulfonamides, three mass-labelled (^{13}C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^{2}H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (^{2}H) perfluorooctane-sulfonamidoethanols, and mass-labelled (^{13}C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ^{13}C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ^{2}H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)	Peak Assignment in Figure 1
Perfluoro-n-($^{13}C_4$)butanoic acid	MPFBA	2000	1
Perfluoro-n-($^{13}C_5$)pentanoic acid	M5PFPeA	1000	2
Perfluoro-n-(1,2,3,4,6-$^{13}C_5$)hexanoic acid	M5PFHxA	500	5
Perfluoro-n-(1,2,3,4-$^{13}C_4$)heptanoic acid	M4PFHpA	500	7
Perfluoro-n-($^{13}C_8$)octanoic acid	M8PFOA	500	10
Perfluoro-n-($^{13}C_9$)nonanoic acid	M9PFNA	250	11
Perfluoro-n-(1,2,3,4,5,6-$^{13}C_6$)decanoic acid	M6PFDA	250	14
Perfluoro-n-(1,2,3,4,5,6,7-$^{13}C_7$)undecanoic acid	M7PFUdA	250	18
Perfluoro-n-(1,2-$^{13}C_2$)dodecanoic acid	MPFDoA	250	19
Perfluoro-n-(1,2-$^{13}C_2$)tetradecanoic acid	M2PFTeDA	250	22
Perfluoro-1-($^{13}C_8$)octanesulfonamide	M8FOSA	500	17
N-methyl-d_3-perfluoro-1-octanesulfonamide	d-N-MeFOSA	500	21
N-ethyl-d_5-perfluoro-1-octanesulfonamide	d-N-EtFOSA	500	24
N-methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000	15
N-ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000	16
2-(N-methyl-d_3-perfluoro-1-octanesulfonamido)ethan-d_4-ol	d7-N-MeFOSE	5000	20
2-(N-ethyl-d_5-perfluoro-1-octanesulfonamido)ethan-d_4-ol	d9-N-EtFOSE	5000	23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid	M3HFPO-DA	2000	6

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4-$^{13}C_3$)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3-$^{13}C_3$)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-($^{13}C_8$)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 11/24/2022 (mm/dd/yyyy)

B.G. Chittim, General Manager

Analytical Standard Record

23C0075

Description:	MPFAC-HIF-ES-EIS	Expires:	11/23/2025
Standard Type:	Other	Prepared:	10/28/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: MPFACHIFES1022)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	03/05/2023 10:17 by ABK
Lot Number:	MPFACHIFES1022		

Analyte	Parent	CAS Number	Concentration	Units
13C2-4:2FTS		13C2-4:2FTS	1	ug/mL
13C2-6:2FTS		13C2-6:2FTS	1	ug/mL
13C2-8:2FTS		13C2-8:2FTS	1	ug/mL
13C2-PFDOA		13C2-PFDOA	0.25	ug/mL
13C2-PFTEDA		13C2-PFTEDA	0.25	ug/mL
13C3-HFPO-DA		13C3-HFPO-DA	2	ug/mL
13C3-PFBS		13C3-PFBS	0.5	ug/mL
13C3-PFHXS		13C3-PFHXS	0.5	ug/mL
13C4-PFBA		13C4-PFBA	2	ug/mL
13C4-PFHPA		13C4-PFHPA	0.5	ug/mL
13C5-PFHXA		13C5-PFHXA	0.5	ug/mL
13C5-PFPEA		13C5-PFPEA	1	ug/mL
13C6-PFDA		13C6-PFDA	0.25	ug/mL
13C7-PFUnA		13C7-PFUDA	0.25	ug/mL
13C8-PFOA		13C8-PFOA	0.5	ug/mL
13C8-PFOS		13C8-PFOS	0.5	ug/mL
13C8-PFOSA		13C8-PFOSA	0.5	ug/mL
13C9-PFNA		13C9-PFNA	0.25	ug/mL
D3-NMEFOSA		D3-NMEFOSA	0.5	ug/mL
D3-NMEFOSAA		D3-NMEFOSAA	1	ug/mL
D5-NETFOSA		D5-NETFOSA	0.5	ug/mL
D5-NETFOSAA		D5-NETFOSAA	1	ug/mL
D7-NMEFOSE		D7-NMEFOSE	5	ug/mL
D9-NETFOSE		D9-NETFOSE	5	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE:	MPFAC-HIF-ES
LOT NUMBER:	MPFACHIFES1022
SOLVENT(S):	Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	10/28/2022
LAST TESTED: (mm/dd/yyyy)	11/23/2022
EXPIRY DATE: (mm/dd/yyyy)	11/23/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4-C_{12}, C_{14}), three mass-labelled (^{13}C) perfluoroalkanesulfonates (C_4, C_6, and C_8), three mass-labelled (one ^{13}C and two ^{2}H) perfluoro-1-octanesulfonamides, three mass-labelled (^{13}C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^{2}H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (^{2}H) perfluorooctane-sulfonamidoethanols, and mass-labelled (^{13}C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ^{13}C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ^{2}H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **MPFAC-HIF-ES; Components and Concentrations (ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))**

Compound	Acronym	Concentration (ng/mL)	Peak Assignment in Figure 1
Perfluoro-n-($^{13}C_4$)butanoic acid	MPFBA	2000	1
Perfluoro-n-($^{13}C_5$)pentanoic acid	M5PFPeA	1000	2
Perfluoro-n-(1,2,3,4,6-$^{13}C_5$)hexanoic acid	M5PFHxA	500	5
Perfluoro-n-(1,2,3,4-$^{13}C_4$)heptanoic acid	M4PFHpA	500	7
Perfluoro-n-($^{13}C_8$)octanoic acid	M8PFOA	500	10
Perfluoro-n-($^{13}C_9$)nonanoic acid	M9PFNA	250	11
Perfluoro-n-(1,2,3,4,5,6-$^{13}C_6$)decanoic acid	M6PFDA	250	14
Perfluoro-n-(1,2,3,4,5,6,7-$^{13}C_7$)undecanoic acid	M7PFUdA	250	18
Perfluoro-n-(1,2-$^{13}C_2$)dodecanoic acid	MPFDoA	250	19
Perfluoro-n-(1,2-$^{13}C_2$)tetradecanoic acid	M2PFTeDA	250	22
Perfluoro-1-($^{13}C_8$)octanesulfonamide	M8FOSA	500	17
N-methyl-d_3-perfluoro-1-octanesulfonamide	d-N-MeFOSA	500	21
N-ethyl-d_5-perfluoro-1-octanesulfonamide	d-N-EtFOSA	500	24
N-methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000	15
N-ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000	16
2-(N-methyl-d_3-perfluoro-1-octanesulfonamido)ethan-d_4-ol	d7-N-MeFOSE	5000	20
2-(N-ethyl-d_5-perfluoro-1-octanesulfonamido)ethan-d_4-ol	d9-N-EtFOSE	5000	23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid	M3HFPO-DA	2000	6

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4-$^{13}C_3$)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3-$^{13}C_3$)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-($^{13}C_8$)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)decanesulfonate	M2-8:2FTS	1000	960	13

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 11/24/2022
(mm/dd/yyyy)

B.G. Chittim, General Manager