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 11, 2023

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

RE: Red Hill AFFF Assessment Sampling
23C0205

Enclosed are the results of analyses for samples received by our laboratory on 3/24/2023. 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: 04/11/2023 13:10

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.

Eleven analytes recovered above the upper control limit in the BCC0442-MRL1. Samples were reextracted and this data set was excluded.

The analyte PFOS recovered above the upper control limits in the BCD0035-MRL1. No sample volume remains for re-extraction.

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
23C0205-01	AF-HDMW225303-WGN01LF-2303W3	Water	03/21/2023 10:00	03/24/2023
23C0205-02	AF-RHMW10-WGN01LF-2303W3	Water	03/21/2023 12:55	03/24/2023

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: 04/11/2023 13:10

Containers Received

Lab ID	Container Type	Count	Preservation Check
23C0205-01			
	500mL P	2	
23C0205-02			
	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: 04/11/2023 13:10

Sample Results

Sample: AF-HDMW225303-WGN01LF-2303W3
23C0205-01 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.69	U	1.4	0.69	0.18	ng/L	04/07/23	1	EPA 1633	BCD0035
PFPEA	0.34	U	0.69	0.34	0.056	ng/L	04/07/23	1	EPA 1633	BCD0035
PFHXA	0.17	U	0.34	0.17	0.047	ng/L	04/07/23	1	EPA 1633	BCD0035
PFHPA	0.17	U	0.34	0.17	0.035	ng/L	04/07/23	1	EPA 1633	BCD0035
PFOA	0.26	U	0.34	0.26	0.13	ng/L	04/07/23	1	EPA 1633	BCD0035
PFNA	0.17	U	0.34	0.17	0.071	ng/L	04/07/23	1	EPA 1633	BCD0035
PFDA	0.17	U	0.34	0.17	0.087	ng/L	04/07/23	1	EPA 1633	BCD0035
PFUnA	0.26	U	0.34	0.26	0.14	ng/L	04/07/23	1	EPA 1633	BCD0035
PFDOA	0.17	U	0.34	0.17	0.096	ng/L	04/07/23	1	EPA 1633	BCD0035
PFTRDA	0.26	U	0.34	0.26	0.18	ng/L	04/07/23	1	EPA 1633	BCD0035
PFTEDA	0.26	U	0.34	0.26	0.17	ng/L	04/07/23	1	EPA 1633	BCD0035
PFBS	0.17	U	0.34	0.17	0.032	ng/L	04/07/23	1	EPA 1633	BCD0035
PFPES	0.17	U	0.34	0.17	0.054	ng/L	04/07/23	1	EPA 1633	BCD0035
PFHXS	0.059	J	0.34	0.17	0.027	ng/L	04/07/23	1	EPA 1633	BCD0035
PFHPS	0.17	U	0.34	0.17	0.044	ng/L	04/07/23	1	EPA 1633	BCD0035
PFOS	0.46		0.34	0.17	0.055	ng/L	04/07/23	1	EPA 1633	BCD0035
PFNS	0.17	U	0.34	0.17	0.11	ng/L	04/07/23	1	EPA 1633	BCD0035
PFDS	0.26	U	0.34	0.26	0.13	ng/L	04/07/23	1	EPA 1633	BCD0035
PFDOS	0.17	U	0.34	0.17	0.11	ng/L	04/07/23	1	EPA 1633	BCD0035
4:2FTS	0.69	U	1.4	0.69	0.25	ng/L	04/07/23	1	EPA 1633	BCD0035
6:2FTS	0.69	U	1.4	0.69	0.27	ng/L	04/07/23	1	EPA 1633	BCD0035
8:2FTS	0.69	U	1.4	0.69	0.071	ng/L	04/07/23	1	EPA 1633	BCD0035
PFOSA	0.17	U	0.34	0.17	0.090	ng/L	04/07/23	1	EPA 1633	BCD0035
NMeFOSA	0.69	U	1.4	0.69	0.41	ng/L	04/07/23	1	EPA 1633	BCD0035
NEtFOSA	0.69	U	1.4	0.69	0.36	ng/L	04/07/23	1	EPA 1633	BCD0035
NMeFOSAA	0.17	U	0.34	0.17	0.091	ng/L	04/07/23	1	EPA 1633	BCD0035
NEtFOSAA	0.17	U	0.34	0.17	0.099	ng/L	04/07/23	1	EPA 1633	BCD0035
NMeFOSE	1.0	U	1.4	1.0	0.87	ng/L	04/07/23	1	EPA 1633	BCD0035
NEtFOSE	1.0	U	1.4	1.0	0.90	ng/L	04/07/23	1	EPA 1633	BCD0035
HFPO-DA	0.34	U	0.69	0.34	0.15	ng/L	04/07/23	1	EPA 1633	BCD0035
ADONA	0.34	U	0.69	0.34	0.11	ng/L	04/07/23	1	EPA 1633	BCD0035
PFEESA	0.34	U	0.69	0.34	0.094	ng/L	04/07/23	1	EPA 1633	BCD0035
PFMPA	0.34	U	0.69	0.34	0.046	ng/L	04/07/23	1	EPA 1633	BCD0035
PFMBA	0.34	U	0.69	0.34	0.078	ng/L	04/07/23	1	EPA 1633	BCD0035
NFDHA	0.34	U	0.69	0.34	0.26	ng/L	04/07/23	1	EPA 1633	BCD0035
9CL-PF3ONS	0.34	U	0.69	0.34	0.18	ng/L	04/07/23	1	EPA 1633	BCD0035
11CL-PF3OUDS	0.34	U	0.69	0.34	0.18	ng/L	04/07/23	1	EPA 1633	BCD0035
3:3FTCA	0.69	U	1.4	0.69	0.50	ng/L	04/07/23	1	EPA 1633	BCD0035
5:3FTCA	0.69	U	1.4	0.69	0.38	ng/L	04/07/23	1	EPA 1633	BCD0035
7:3FTCA	0.69	U	1.4	0.69	0.48	ng/L	04/07/23	1	EPA 1633	BCD0035
Surrogate: 13C4-PFBA	*99.8%*		*10-130*				*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C5-PFPEA	*97.1%*		*35-150*				*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C5-PFHXA	*101%*		*55-150*				*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C4-PFHPA	*92.8%*		*55-150*				*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C8-PFOA	*102%*		*60-140*				*04/07/23*	1	*EPA 1633*	*BCD0035*

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: 04/11/2023 13:10

Sample Results
(Continued)

Sample: AF-HDMW225303-WGN01LF-2303W3 (Continued)
23C0205-01 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*85.1%*			*55-140*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C6-PFDA	*100%*			*50-140*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C7-PFUnA	*108%*			*30-140*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-PFDOA	*99.2%*			*10-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-PFTEDA	*93.6%*			*10-130*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C3-PFBS	*119%*			*55-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C3-PFHXS	*99.7%*			*55-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C8-PFOS	*94.2%*			*45-140*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-4:2FTS	*128%*			*60-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-6:2FTS	*109%*			*60-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-8:2FTS	*93.9%*			*50-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C8-PFOSA	*90.8%*			*30-130*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D3-NMEFOSA	*39.3%*			*15-130*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D5-NETFOSA	*36.5%*			*10-130*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D3-NMEFOSAA	*91.7%*			*45-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D5-NETFOSAA	*93.1%*			*10-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D7-NMEFOSE	*60.0%*			*10-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D9-NETFOSE	*68.8%*			*10-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C3-HFPO-DA	*101%*			*25-160*			*04/07/23*	1	*EPA 1633*	*BCD0035*

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: 04/11/2023 13:10

Sample Results

(Continued)

Sample: AF-RHMW10-WGN01LF-2303W3
23C0205-02 (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	04/07/23	1	EPA 1633	BCD0035
PFPEA	0.37	U	0.74	0.37	0.060	ng/L	04/07/23	1	EPA 1633	BCD0035
PFHXA	0.19	U	0.37	0.19	0.051	ng/L	04/07/23	1	EPA 1633	BCD0035
PFHPA	0.19	U	0.37	0.19	0.038	ng/L	04/07/23	1	EPA 1633	BCD0035
PFOA	0.28	U	0.37	0.28	0.14	ng/L	04/07/23	1	EPA 1633	BCD0035
PFNA	0.19	U	0.37	0.19	0.076	ng/L	04/07/23	1	EPA 1633	BCD0035
PFDA	0.19	U	0.37	0.19	0.094	ng/L	04/07/23	1	EPA 1633	BCD0035
PFUnA	0.28	U	0.37	0.28	0.15	ng/L	04/07/23	1	EPA 1633	BCD0035
PFDOA	0.19	U	0.37	0.19	0.10	ng/L	04/07/23	1	EPA 1633	BCD0035
PFTRDA	0.28	U	0.37	0.28	0.19	ng/L	04/07/23	1	EPA 1633	BCD0035
PFTEDA	0.28	U	0.37	0.28	0.18	ng/L	04/07/23	1	EPA 1633	BCD0035
PFBS	0.19	U	0.37	0.19	0.034	ng/L	04/07/23	1	EPA 1633	BCD0035
PFPES	0.19	U	0.37	0.19	0.058	ng/L	04/07/23	1	EPA 1633	BCD0035
PFHXS	0.19	U	0.37	0.19	0.029	ng/L	04/07/23	1	EPA 1633	BCD0035
PFHPS	0.19	U	0.37	0.19	0.048	ng/L	04/07/23	1	EPA 1633	BCD0035
PFOS	0.19	U	0.37	0.19	0.059	ng/L	04/07/23	1	EPA 1633	BCD0035
PFNS	0.19	U	0.37	0.19	0.11	ng/L	04/07/23	1	EPA 1633	BCD0035
PFDS	0.28	U	0.37	0.28	0.14	ng/L	04/07/23	1	EPA 1633	BCD0035
PFDOS	0.19	U	0.37	0.19	0.11	ng/L	04/07/23	1	EPA 1633	BCD0035
4:2FTS	0.74	U	1.5	0.74	0.27	ng/L	04/07/23	1	EPA 1633	BCD0035
6:2FTS	0.74	U	1.5	0.74	0.29	ng/L	04/07/23	1	EPA 1633	BCD0035
8:2FTS	0.74	U	1.5	0.74	0.076	ng/L	04/07/23	1	EPA 1633	BCD0035
PFOSA	0.11	J	0.37	0.19	0.097	ng/L	04/07/23	1	EPA 1633	BCD0035
NMeFOSA	0.74	U	1.5	0.74	0.44	ng/L	04/07/23	1	EPA 1633	BCD0035
NEtFOSA	0.74	U	1.5	0.74	0.38	ng/L	04/07/23	1	EPA 1633	BCD0035
NMeFOSAA	0.19	U	0.37	0.19	0.098	ng/L	04/07/23	1	EPA 1633	BCD0035
NEtFOSAA	0.19	U	0.37	0.19	0.11	ng/L	04/07/23	1	EPA 1633	BCD0035
NMeFOSE	1.1	U	1.5	1.1	0.94	ng/L	04/07/23	1	EPA 1633	BCD0035
NEtFOSE	1.1	U	1.5	1.1	0.97	ng/L	04/07/23	1	EPA 1633	BCD0035
HFPO-DA	0.37	U	0.74	0.37	0.16	ng/L	04/07/23	1	EPA 1633	BCD0035
ADONA	0.37	U	0.74	0.37	0.11	ng/L	04/07/23	1	EPA 1633	BCD0035
PFEESA	0.37	U	0.74	0.37	0.10	ng/L	04/07/23	1	EPA 1633	BCD0035
PFMPA	0.37	U	0.74	0.37	0.050	ng/L	04/07/23	1	EPA 1633	BCD0035
PFMBA	0.37	U	0.74	0.37	0.084	ng/L	04/07/23	1	EPA 1633	BCD0035
NFDHA	0.37	U	0.74	0.37	0.28	ng/L	04/07/23	1	EPA 1633	BCD0035
9CL-PF3ONS	0.37	U	0.74	0.37	0.19	ng/L	04/07/23	1	EPA 1633	BCD0035
11CL-PF3OUDS	0.37	U	0.74	0.37	0.19	ng/L	04/07/23	1	EPA 1633	BCD0035
3:3FTCA	0.74	U	1.5	0.74	0.54	ng/L	04/07/23	1	EPA 1633	BCD0035
5:3FTCA	0.74	U	1.5	0.74	0.41	ng/L	04/07/23	1	EPA 1633	BCD0035
7:3FTCA	0.74	U	1.5	0.74	0.52	ng/L	04/07/23	1	EPA 1633	BCD0035
Surrogate: 13C4-PFBA	*101%*		*10-130*				*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C5-PFPEA	*98.4%*		*35-150*				*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C5-PFHXA	*93.7%*		*55-150*				*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C4-PFHPA	*91.1%*		*55-150*				*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C8-PFOA	*96.3%*		*60-140*				*04/07/23*	1	*EPA 1633*	*BCD0035*

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: 04/11/2023 13:10

Sample Results
(Continued)

Sample: AF-RHMW10-WGN01LF-2303W3 (Continued)
23C0205-02 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*95.3%*			*55-140*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C6-PFDA	*89.6%*			*50-140*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C7-PFUnA	*94.3%*			*30-140*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-PFDOA	*95.7%*			*10-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-PFTEDA	*90.0%*			*10-130*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C3-PFBS	*113%*			*55-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C3-PFHXS	*99.0%*			*55-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C8-PFOS	*96.3%*			*45-140*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-4:2FTS	*120%*			*60-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-6:2FTS	*103%*			*60-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C2-8:2FTS	*101%*			*50-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C8-PFOSA	*96.7%*			*30-130*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D3-NMEFOSA	*58.7%*			*15-130*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D5-NETFOSA	*59.6%*			*10-130*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D3-NMEFOSAA	*93.7%*			*45-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D5-NETFOSAA	*92.4%*			*10-200*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D7-NMEFOSE	*66.6%*			*10-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: D9-NETFOSE	*81.1%*			*10-150*			*04/07/23*	1	*EPA 1633*	*BCD0035*
Surrogate: 13C3-HFPO-DA	*99.5%*			*25-160*			*04/07/23*	1	*EPA 1633*	*BCD0035*

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: 04/11/2023 13:10

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: BCD0035 - EPA 1633										
Blank (BCD0035-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	0.20 U	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	*34.1*				*32.0*		*107*	*10-130*		
13C5-PFPEA	*20.5*				*16.0*		*128*	*35-150*		
13C5-PFHXA	*9.91*				*8.00*		*124*	*55-150*		

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: 04/11/2023 13:10

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 (BCD0035-BLK1)						Prepared: 04/04/23 12:20 Analyzed: 04/07/23 17:34				
	ng/L									
Surrogates										
13C4-PFHPA	*9.84*				*8.00*		*123*	*55-150*		
13C8-PFOA	*8.56*				*8.00*		*107*	*60-140*		
13C9-PFNA	*4.83*				*4.00*		*121*	*55-140*		
13C6-PFDA	*4.31*				*4.00*		*108*	*50-140*		
13C7-PFUnA	*4.49*				*4.00*		*112*	*30-140*		
13C2-PFDOA	*4.06*				*4.00*		*102*	*10-150*		
13C2-PFTEDA	*4.13*				*4.00*		*103*	*10-130*		
13C3-PFBS	*8.45*				*8.00*		*106*	*55-150*		
13C3-PFHXS	*8.37*				*8.00*		*105*	*55-150*		
13C8-PFOS	*7.83*				*8.00*		*97.9*	*45-140*		
13C2-4:2FTS	*18.4*				*16.0*		*115*	*60-200*		
13C2-6:2FTS	*17.9*				*16.0*		*112*	*60-200*		
13C2-8:2FTS	*17.6*				*16.0*		*110*	*50-200*		
13C8-PFOSA	*7.69*				*8.00*		*96.2*	*30-130*		
D3-NMEFOSA	*4.55*				*8.00*		*56.9*	*15-130*		
D5-NETFOSA	*4.86*				*8.00*		*60.8*	*10-130*		
D3-NMEFOSAA	*16.0*				*16.0*		*100*	*45-200*		
D5-NETFOSAA	*15.3*				*16.0*		*95.6*	*10-200*		
D7-NMEFOSE	*58.2*				*80.0*		*72.8*	*10-150*		
D9-NETFOSE	*67.4*				*80.0*		*84.2*	*10-150*		
13C3-HFPO-DA	*39.4*				*32.0*		*123*	*25-160*		
LCS (BCD0035-BS1)						Prepared: 04/04/23 12:20 Analyzed: 04/07/23 17:47				
	ng/L									
PFBA	16.7				16.0		104	58-148		
PFPEA	7.86				8.00		98.2	54-152		
PFHXA	4.39				4.00		110	55-152		
PFHPA	4.41				4.00		110	54-154		
PFOA	3.99				4.00		99.9	52-161		
PFNA	4.44				4.00		111	59-149		
PFDA	3.74				4.00		93.4	52-147		
PFUnA	3.83				4.00		95.8	48-159		
PFDOA	4.66				4.00		116	64-142		
PFTRDA	4.40				4.00		110	49-148		
PFTEDA	4.22				4.00		105	47-161		
PFBS	3.65				3.54		103	62-144		
PFPES	3.88				3.76		103	59-151		
PFHXS	3.55				3.66		97.0	57-146		
PFHPS	3.61				3.82		94.4	55-152		
PFOS	3.54				3.72		95.2	58-149		
PFNS	3.80				3.84		98.9	52-148		
PFDS	3.83				3.86		99.3	51-147		
PFDOS	3.78				3.88		97.5	36-145		
4:2FTS	14.1				15.0		94.2	67-146		
6:2FTS	16.4				15.2		108	61-151		
8:2FTS	17.3				15.4		112	63-152		
PFOSA	4.20				4.00		105	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: 04/11/2023 13:10

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 (BCD0035-BS1)						Prepared: 04/04/23 12:20		Analyzed: 04/07/23 17:47		
	ng/L									
NMeFOSA	17.7				16.0		111	63-145		
NEtFOSA	16.7				16.0		104	65-139		
NMeFOSAA	3.95				4.00		98.9	58-144		
NEtFOSAA	4.20				4.00		105	59-146		
NMeFOSE	15.9				16.0		99.4	71-136		
NEtFOSE	15.4				16.0		96.2	69-137		
HFPO-DA	8.10				8.00		101	63-144		
ADONA	8.22				7.56		109	68-146		
PFEESA	7.19				7.12		101	56-151		
PFMPA	7.40				8.00		92.5	51-145		
PFMBA	7.36				8.00		92.0	55-148		
NFDHA	8.02				8.00		100	48-161		
9CL-PF3ONS	7.72				7.48		103	56-156		
11CL-PF3OUDS	7.22				7.56		95.6	46-156		
3:3FTCA	13.9				16.0		87.0	62-129		
5:3FTCA	17.0				16.0		106	63-134		
7:3FTCA	14.6				16.0		91.4	50-138		
Surrogates										
13C4-PFBA	*33.0*				*32.0*		*103*	*10-130*		
13C5-PFPEA	*20.1*				*16.0*		*126*	*35-150*		
13C5-PFHXA	*9.65*				*8.00*		*121*	*55-150*		
13C4-PFHPA	*9.36*				*8.00*		*117*	*55-150*		
13C8-PFOA	*8.51*				*8.00*		*106*	*60-140*		
13C9-PFNA	*4.10*				*4.00*		*103*	*55-140*		
13C6-PFDA	*4.61*				*4.00*		*115*	*50-140*		
13C7-PFUnA	*4.98*				*4.00*		*125*	*30-140*		
13C2-PFDOA	*4.37*				*4.00*		*109*	*10-150*		
13C2-PFTEDA	*4.37*				*4.00*		*109*	*10-130*		
13C3-PFBS	*8.39*				*8.00*		*105*	*55-150*		
13C3-PFHXS	*8.28*				*8.00*		*104*	*55-150*		
13C8-PFOS	*8.06*				*8.00*		*101*	*45-140*		
13C2-4:2FTS	*17.4*				*16.0*		*109*	*60-200*		
13C2-6:2FTS	*17.1*				*16.0*		*107*	*60-200*		
13C2-8:2FTS	*16.2*				*16.0*		*101*	*50-200*		
13C8-PFOSA	*7.36*				*8.00*		*92.0*	*30-130*		
D3-NMEFOSA	*3.79*				*8.00*		*47.4*	*15-130*		
D5-NETFOSA	*3.92*				*8.00*		*49.0*	*10-130*		
D3-NMEFOSAA	*15.3*				*16.0*		*95.3*	*45-200*		
D5-NETFOSAA	*15.1*				*16.0*		*94.2*	*10-200*		
D7-NMEFOSE	*56.9*				*80.0*		*71.1*	*10-150*		
D9-NETFOSE	*63.8*				*80.0*		*79.7*	*10-150*		
13C3-HFPO-DA	*39.1*				*32.0*		*122*	*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: 04/11/2023 13:10

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 (BCD0035-MRL1)						Prepared: 04/04/23 12:20		Analyzed: 04/07/23 18:00		
	ng/L									
PFBA	1.61				1.60		100	44-157		
PFPEA	0.770 J				0.800		96.2	57-148		
PFHXA	0.458				0.400		114	62-149		
PFHPA	0.413				0.400		103	56-150		
PFOA	0.416				0.400		104	57-161		
PFNA	0.433				0.400		108	53-157		
PFDA	0.456				0.400		114	43-158		
PFUnA	0.418				0.400		104	50-155		
PFDOA	0.512				0.400		128	60-141		
PFTRDA	0.428				0.400		107	52-140		
PFTEDA	0.368 J				0.400		91.9	52-156		
PFBS	0.425				0.354		120	63-145		
PFPES	0.352 J				0.376		93.6	58-144		
PFHXS	0.574				0.366		157	44-158		
PFHPS	0.417				0.382		109	51-150		
PFOS	1.20 BS2, MI4				0.372		323	43-162		
PFNS	0.341 J				0.384		88.8	46-151		
PFDS	0.330 J				0.386		85.5	50-144		
PFDOS	0.344 J				0.388		88.7	30-138		
4:2FTS	1.49 J				1.50		99.0	52-158		
6:2FTS	1.49 J				1.52		97.9	48-158		
8:2FTS	1.30 J				1.54		84.5	46-165		
PFOSA	0.455				0.400		114	47-163		
NMeFOSA	1.83				1.60		114	54-155		
NEtFOSA	1.64				1.60		103	49-156		
NMeFOSAA	0.423				0.400		106	32-160		
NEtFOSAA	0.432				0.400		108	51-154		
NMeFOSE	1.68				1.60		105	56-151		
NEtFOSE	1.55 J				1.60		96.8	60-147		
HFPO-DA	0.775 J				0.800		96.8	58-154		
ADONA	0.843				0.756		112	61-148		
PFEESA	0.661 J				0.712		92.8	56-144		
PFMPA	0.742 J				0.800		92.7	48-150		
PFMBA	0.834				0.800		104	49-154		
NFDHA	0.772 J				0.800		96.6	47-160		
9CL-PF3ONS	0.799 J				0.748		107	44-167		
11CL-PF3OUDS	0.732 J				0.756		96.8	36-158		
3:3FTCA	1.50 J				1.60		93.4	32-161		
5:3FTCA	1.32 J IR2,				1.60		82.5	39-156		
7:3FTCA	1.58 J				1.60		98.7	36-149		
Surrogates										
13C4-PFBA	*34.4*				*32.0*		*108*	*10-130*		
13C5-PFPEA	*20.0*				*16.0*		*125*	*35-150*		
13C5-PFHXA	*9.84*				*8.00*		*123*	*55-150*		
13C4-PFHPA	*10.1*				*8.00*		*126*	*55-150*		
13C8-PFOA	*8.45*				*8.00*		*106*	*60-140*		
13C9-PFNA	*4.15*				*4.00*		*104*	*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: 04/11/2023 13:10

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 (BCD0035-MRL1)						Prepared: 04/04/23 12:20 Analyzed: 04/07/23 18:00				
	ng/L									
Surrogates										
13C6-PFDA	*4.30*				*4.00*		*107*	*50-140*		
13C7-PFUnA	*4.41*				*4.00*		*110*	*30-140*		
13C2-PFDOA	*3.79*				*4.00*		*94.7*	*10-150*		
13C2-PFTEDA	*4.29*				*4.00*		*107*	*10-130*		
13C3-PFBS	*8.96*				*8.00*		*112*	*55-150*		
13C3-PFHXS	*9.04*				*8.00*		*113*	*55-150*		
13C8-PFOS	*8.16*				*8.00*		*102*	*45-140*		
13C2-4:2FTS	*21.9*				*16.0*		*137*	*60-200*		
13C2-6:2FTS	*19.2*				*16.0*		*120*	*60-200*		
13C2-8:2FTS	*17.7*				*16.0*		*111*	*50-200*		
13C8-PFOSA	*7.73*				*8.00*		*96.6*	*30-130*		
D3-NMEFOSA	*4.08*				*8.00*		*51.1*	*15-130*		
D5-NETFOSA	*4.39*				*8.00*		*54.8*	*10-130*		
D3-NMEFOSAA	*15.6*				*16.0*		*97.3*	*45-200*		
D5-NETFOSAA	*15.7*				*16.0*		*97.8*	*10-200*		
D7-NMEFOSE	*53.7*				*80.0*		*67.1*	*10-150*		
D9-NETFOSE	*59.4*				*80.0*		*74.3*	*10-150*		
13C3-HFPO-DA	*39.1*				*32.0*		*122*	*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: 04/11/2023 13:10

Notes and Definitions

Item	Definition
BS2	Blank spike recovered above the upper control limit
CV2	Calibration verification recovered above the upper control limit
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
MI4	Manual integration, peak unsplit
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

23C0205

Printed: 04/11/2023 1:10 pm

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: 03/24/2023 02:55 PM
Date Due: 03/31/2023 (5.00 day TAT)

Logged In By: Megan Salata
Received By: Lincoln Hooper

Analysis	Comments

23C0205 **Sample Receipt Log**

Default Cooler

Samples Received at: **0.7°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

23C0205

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. 2303W3AFAL03

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)	Date Shipped:
CTO N6274223F0104 / 60697810	TESSA MURPHY	Carrier: United
Purchase Order Number	Sampler (Signature)	Waybill No 016 2752 2456
	[signature]	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		Analysis Requested/Method Number: PFAS EPA Draft 1633
AF-RHMW10-WGN01LF-2303W3	RHMW10	3/21/23	1255	HST	2	✔				✔

TM 3/21/23

TM 3/21/23

Bottle Temperature: RB: 3.3/0.7°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:
[signature] TESSA MURPHY	3/21/23	1354	Alex Edmonds	Alex Edmonds	3/21/23	1400	
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date 3/25/23 (24 [initials])	Time 1455	Received at lab by: [signature]

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

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

ELECTRONIC CHAIN OF CUSTODY RECORD

C.O.C. 2303W3AFAL04

Report to: PLEASE PRINT

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

Invoice to: PLEASE PRINT

Company Name: AECOM Phone:
Address: Fax:
Attn: Sheree Smith
Email: USAPimaging@aecom.com

Project Name/Number: CTO N6274223F0104 / 60697810
Purchase Order Number:
Sampler (Print): Andy Young
Sampler (Signature): asy S

Date Shipped:
Carrier: United
Waybill No. 016 2752 2456
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	Analysis Requested/Method Number: PFAS EPA Draft 1633
AF-HDMW225303-WGN01LF-2303W3	HDMW2253-03	3/21/23	1000	HST	2	✔			✔

asy S 3/21/23

asy S 3/21/23

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:
Andy Young asy S	3/21/23	1354	Alex Edmonds	Alex Edmonds	3/21/23	1709 1354	
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					3/21/23 24 mH	1455	Linda Hooper

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 GA Date 3/24/23

PFAS

SAMPLE DATA

FORM I
ANALYSIS DATA SHEET

AF-HDMW225303-WGN01LF-2303W3

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23C0205-01RE2	File ID:	S2023-04-07B (20)
Sampled:	03/21/23 10:00	Prepared:	04/04/23 12:20	Analyzed:	04/07/23 20:22
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	579.72 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.69 U	1.4	0.69	0.18	
PFPEA	0.34 U	0.69	0.34	0.056	
PFHXA	0.17 U	0.34	0.17	0.047	
PFHPA	0.17 U	0.34	0.17	0.035	
PFOA	0.26 U	0.34	0.26	0.13	
PFNA	0.17 U	0.34	0.17	0.071	
PFDA	0.17 U	0.34	0.17	0.087	
PFUnA	0.26 U	0.34	0.26	0.14	
PFDOA	0.17 U	0.34	0.17	0.096	
PFTRDA	0.26 U	0.34	0.26	0.18	
PFTEDA	0.26 U	0.34	0.26	0.17	
PFBS	0.17 U	0.34	0.17	0.032	
PFPES	0.17 U	0.34	0.17	0.054	
PFHXS	0.059 J	0.34	0.17	0.027	
PFHPS	0.17 U	0.34	0.17	0.044	
PFOS	0.46	0.34	0.17	0.055	
PFNS	0.17 U	0.34	0.17	0.11	
PFDS	0.26 U	0.34	0.26	0.13	
PFDOS	0.17 U	0.34	0.17	0.11	
4:2FTS	0.69 U	1.4	0.69	0.25	
6:2FTS	0.69 U	1.4	0.69	0.27	
8:2FTS	0.69 U	1.4	0.69	0.071	
PFOSA	0.17 U	0.34	0.17	0.090	
NMeFOSA	0.69 U	1.4	0.69	0.41	
NEtFOSA	0.69 U	1.4	0.69	0.36	
NMeFOSAA	0.17 U	0.34	0.17	0.091	
NEtFOSAA	0.17 U	0.34	0.17	0.099	
NMeFOSE	1.0 U	1.4	1.0	0.87	
NEtFOSE	1.0 U	1.4	1.0	0.90	
HFPO-DA	0.34 U	0.69	0.34	0.15	

FORM I
ANALYSIS DATA SHEET

AF-HDMW225303-WGN01LF-2303W3

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23C0205-01RE2	File ID:	S2023-04-07B (20)
Sampled:	03/21/23 10:00	Prepared:	04/04/23 12:20	Analyzed:	04/07/23 20:22
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	579.72 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001

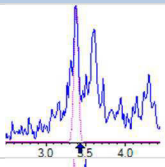
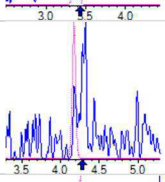
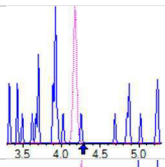
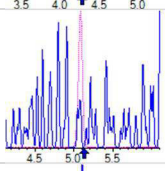
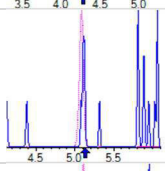
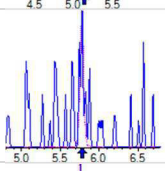
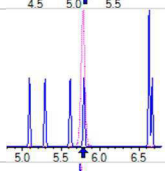
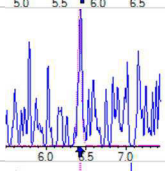
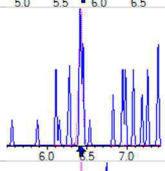
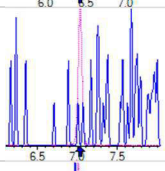
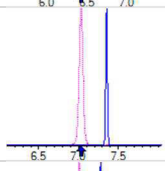
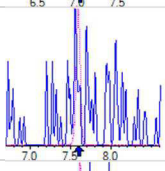
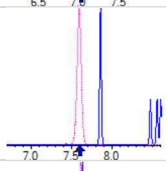
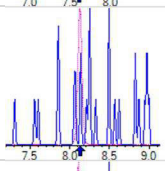
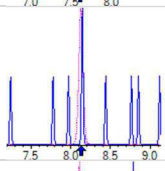
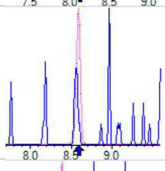
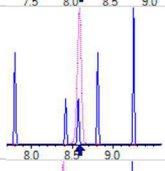
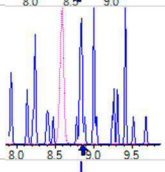
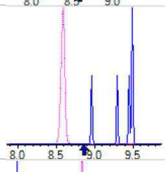
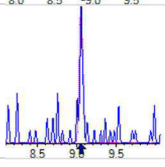
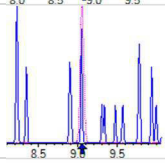
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.34 U	0.69	0.34	0.11	
PFEESA	0.34 U	0.69	0.34	0.094	
PFMPA	0.34 U	0.69	0.34	0.046	
PFMBA	0.34 U	0.69	0.34	0.078	
NFDHA	0.34 U	0.69	0.34	0.26	
9CL-PF3ONS	0.34 U	0.69	0.34	0.18	
11CL-PF3OUDS	0.34 U	0.69	0.34	0.18	
3:3FTCA	0.69 U	1.4	0.69	0.50	
5:3FTCA	0.69 U	1.4	0.69	0.38	
7:3FTCA	0.69 U	1.4	0.69	0.48	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (20)
Acquired: 2023/04/07 - 20:22

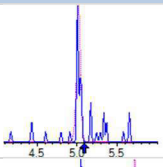
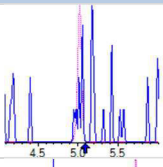
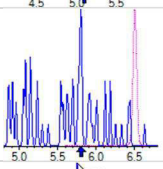
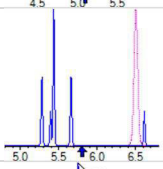
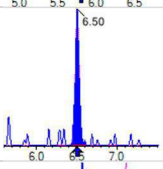
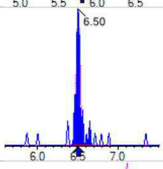
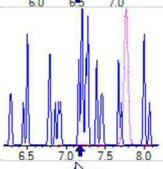
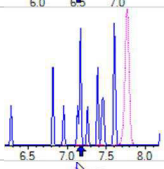
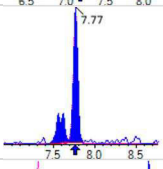
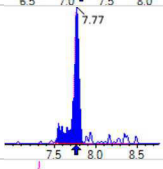
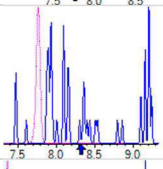
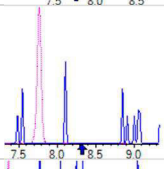
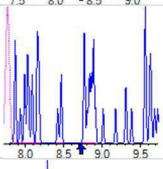
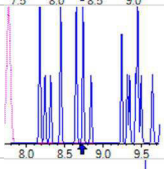
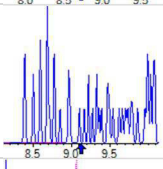
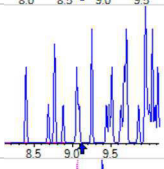
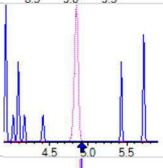
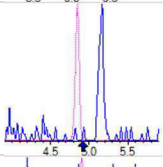
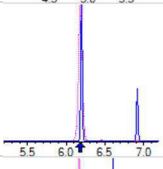
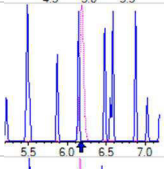
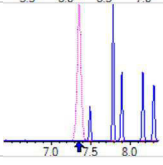
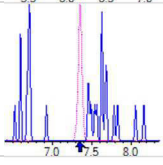
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (20)
Acquired: 2023/04/07 - 20:22

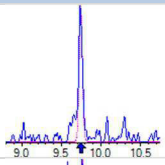
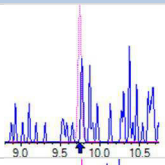
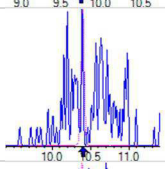
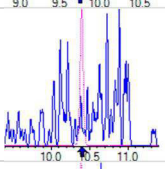
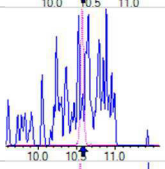
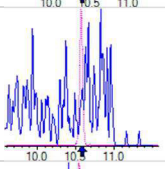
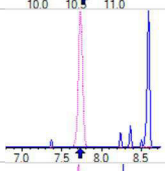
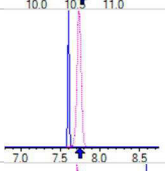
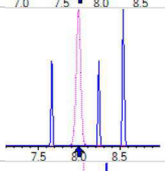
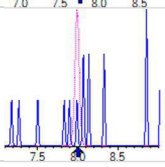
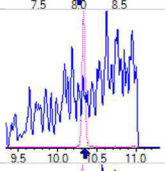
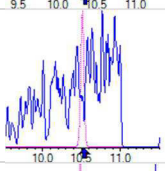
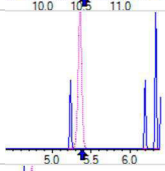
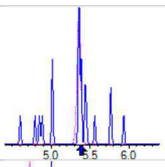
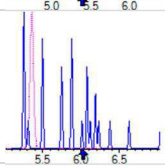
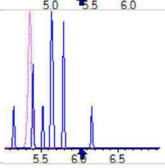
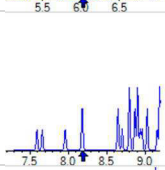
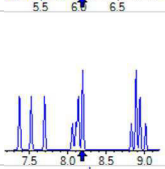
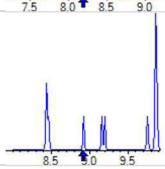
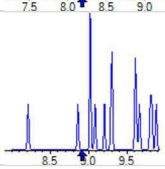
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 11024 (399.0 / 99.0) 5430	(6.50 , 1.00) (0.00 , N/A , 0.0)	21022.5 451.5	0.4925 137.6 136.8	0.0170	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) 141566 (499.0 / 99.0) 36256	(7.77 , 1.00) (0.00 , N/A , -0.2)	166.0 176.1	0.2561 118.0 110.0	0.1326	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (20)
Acquired: 2023/04/07 - 20:22

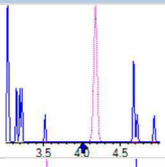
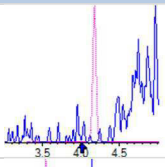
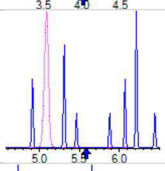
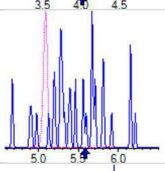
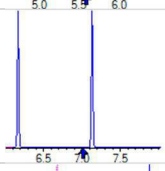
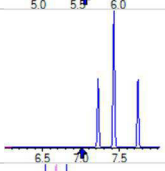
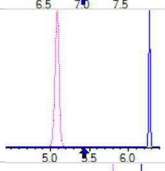
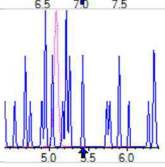
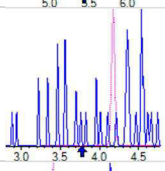
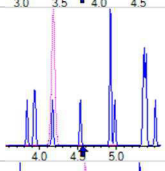
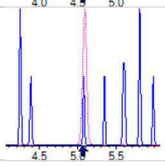
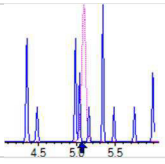
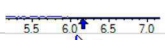
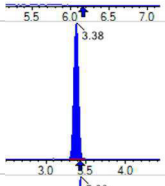
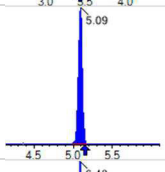
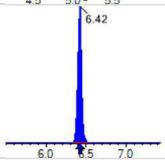
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (20)
Acquired: 2023/04/07 - 20:22

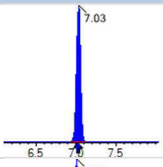
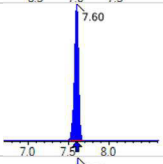
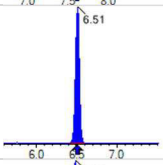
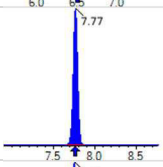
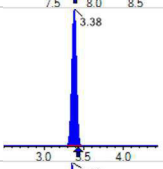
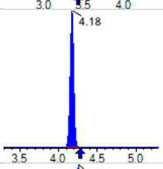
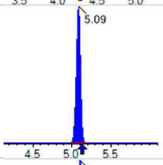
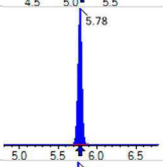
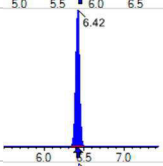
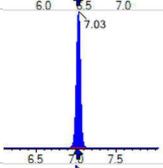
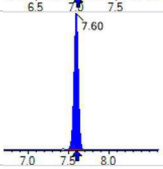
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 124039	(3.38 , N/A) (N/A , -0.05 , N/A)	1735.2	N/A	1.0880 [1.0000]	108.8% { 116.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 157598	(5.09 , N/A) (N/A , -0.05 , N/A)	2925.2	N/A	1.1420 [1.0000]	114.2% { 129.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 321306	(6.42 , N/A) (N/A , 0.00 , N/A)	493.4	N/A	1.0345 [1.0000]	103.4% { 119.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (20)
Acquired: 2023/04/07 - 20:22

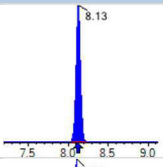
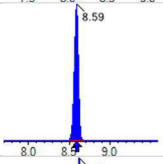
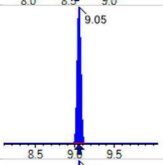
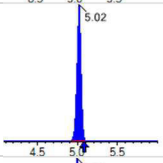
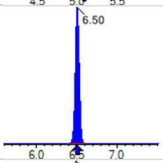
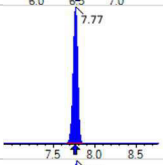
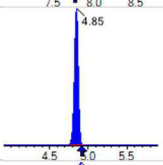
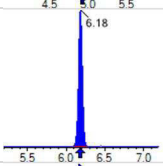
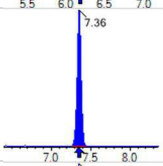
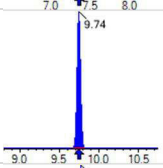
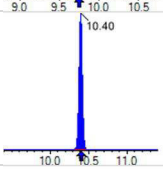
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 361474	(7.03 , N/A) (N/A , 0.01 , N/A)	1629.4	N/A	1.2262 [1.0000]	122.6% { 125.3% }			
13C2_PFDA_IIS	(515.0 / 470.1) 333184	(7.60 , N/A) (N/A , 0.01 , N/A)	35995.7	N/A	1.0748 [1.0000]	107.5% { 110.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 475412	(6.51 , N/A) (N/A , 0.01 , N/A)	28436.2	N/A	1.0598 [1.0000]	106.0% { 110.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 818780	(7.77 , N/A) (N/A , 0.00 , N/A)	1766.7	N/A	1.1766 [1.0000]	117.7% { 127.1% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1061881	(3.38 , N/A) (N/A , -0.04 , N/A)	4704.2	N/A	7.9825 [8.0000]	99.8% { 108.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 966243	(4.18 , N/A) (N/A , -0.11 , N/A)	4096.4	N/A	3.8834 [4.0000]	97.1% { 115.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 611193	(5.09 , N/A) (N/A , -0.05 , N/A)	8985.8	N/A	2.0270 [2.0000]	101.3% { 128.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 560693	(5.78 , N/A) (N/A , 0.00 , N/A)	11061.8	N/A	1.8569 [2.0000]	92.8% { 111.2% }			
13C8_PFOA_EIS	(421.0 / 376.0) 676214	(6.42 , N/A) (N/A , 0.00 , N/A)	4327.0	N/A	2.0445 [2.0000]	102.2% { 110.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 299620	(7.03 , N/A) (N/A , 0.01 , N/A)	40027.3	N/A	0.8509 [1.0000]	85.1% { 101.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 365208	(7.60 , N/A) (N/A , 0.00 , N/A)	2123.9	N/A	1.0035 [1.0000]	100.3% { 103.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (20)
Acquired: 2023/04/07 - 20:22

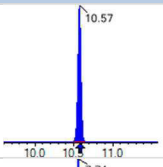
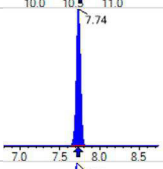
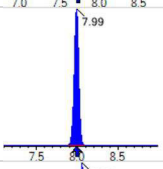
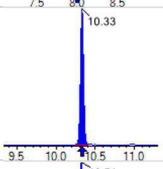
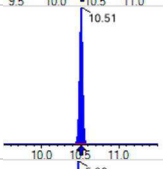
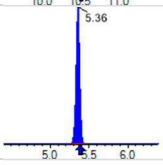
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 377511	(8.13 , N/A) (N/A , 0.00 , N/A)	12818.2	N/A	1.0760 [1.0000]	107.6% { 121.2% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 314593	(8.59 , N/A) (N/A , 0.00 , N/A)	1879.3	N/A	0.9915 [1.0000]	99.2% { 112.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 284423	(9.05 , N/A) (N/A , 0.00 , N/A)	1961.8	N/A	0.9359 [1.0000]	93.6% { 107.2% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1472089	(5.02 , N/A) (N/A , -0.06 , N/A)	3121.1	N/A	2.3708 [2.0000]	118.5% { 124.5% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 886079	(6.50 , N/A) (N/A , 0.00 , N/A)	1999.2	N/A	1.9937 [2.0000]	99.7% { 113.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1877805	(7.77 , N/A) (N/A , 0.00 , N/A)	2842.4	N/A	1.8838 [2.0000]	94.2% { 119.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 292013	(4.85 , N/A) (N/A , -0.06 , N/A)	1540.9	N/A	5.1374 [4.0000]	128.4% { 144.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 330000	(6.18 , N/A) (N/A , 0.00 , N/A)	1164.7	N/A	4.3736 [4.0000]	109.3% { 131.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 348687	(7.36 , N/A) (N/A , 0.00 , N/A)	1458.6	N/A	3.7541 [4.0000]	93.9% { 108.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3063303	(9.74 , N/A) (N/A , 0.00 , N/A)	3620.0	N/A	1.8164 [2.0000]	90.8% { 107.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 300303	(10.40 , N/A) (N/A , 0.00 , N/A)	1782.6	N/A	0.7851 [2.0000]	39.3% { 48.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (20)
Acquired: 2023/04/07 - 20:22

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) 228406	(10.57 , N/A) (N/A , 0.00 , N/A)	2271.8	N/A	0.7293 [2.0000]	36.5% { 41.8% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 767114	(7.74 , N/A) (N/A , 0.00 , N/A)	1664.7	N/A	3.6676 [4.0000]	91.7% { 114.1% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 639905	(7.99 , N/A) (N/A , 0.01 , N/A)	3384.5	N/A	3.7255 [4.0000]	93.1% { 115.4% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1473619	(10.33 , N/A) (N/A , 0.00 , N/A)	1123.9	N/A	11.9911 [20.0000]	60.0% { 71.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2236509	(10.51 , N/A) (N/A , 0.00 , N/A)	1603.3	N/A	13.7533 [20.0000]	68.8% { 82.5% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1255760	(5.36 , N/A) (N/A , -0.03 , N/A)	3436.0	N/A	8.1159 [8.0000]	101.4% { 127.4% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW10-WGN01LF-2303W3

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23C0205-02RE2	File ID:	S2023-04-07B (22)
Sampled:	03/21/23 12:55	Prepared:	04/04/23 12:20	Analyzed:	04/07/23 20:48
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	537.15 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001

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	0.19 U	0.37	0.19	0.051	
PFHPA	0.19 U	0.37	0.19	0.038	
PFOA	0.28 U	0.37	0.28	0.14	
PFNA	0.19 U	0.37	0.19	0.076	
PFDA	0.19 U	0.37	0.19	0.094	
PFUnA	0.28 U	0.37	0.28	0.15	
PFDOA	0.19 U	0.37	0.19	0.10	
PFTRDA	0.28 U	0.37	0.28	0.19	
PFTEDA	0.28 U	0.37	0.28	0.18	
PFBS	0.19 U	0.37	0.19	0.034	
PFPES	0.19 U	0.37	0.19	0.058	
PFHXS	0.19 U	0.37	0.19	0.029	
PFHPS	0.19 U	0.37	0.19	0.048	
PFOS	0.19 U	0.37	0.19	0.059	
PFNS	0.19 U	0.37	0.19	0.11	
PFDS	0.28 U	0.37	0.28	0.14	
PFDOS	0.19 U	0.37	0.19	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	0.11 J	0.37	0.19	0.097	
NMeFOSA	0.74 U	1.5	0.74	0.44	
NEtFOSA	0.74 U	1.5	0.74	0.38	
NMeFOSAA	0.19 U	0.37	0.19	0.098	
NEtFOSAA	0.19 U	0.37	0.19	0.11	
NMeFOSE	1.1 U	1.5	1.1	0.94	
NEtFOSE	1.1 U	1.5	1.1	0.97	
HFPO-DA	0.37 U	0.74	0.37	0.16	

FORM I
ANALYSIS DATA SHEET

AF-RHMW10-WGN01LF-2303W3

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Laboratory ID:	23C0205-02RE2	File ID:	S2023-04-07B (22)
Sampled:	03/21/23 12:55	Prepared:	04/04/23 12:20	Analyzed:	04/07/23 20:48
Solids:		Preparation:	EPA 1633	Dilution:	1
Initial/Final:	537.15 mL / 2 mL			Instrument:	Saphira
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001

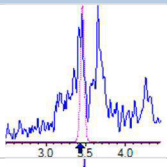
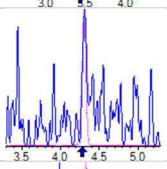
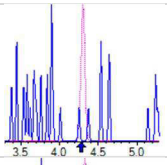
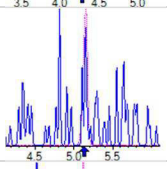
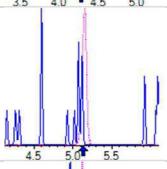
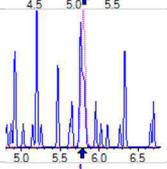
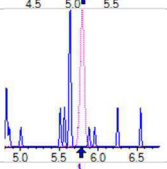
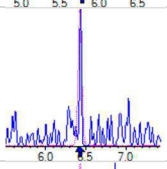
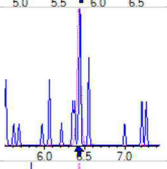
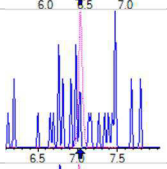
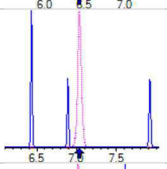
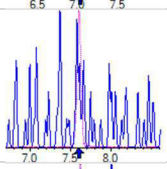
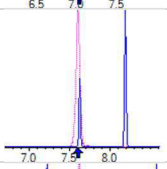
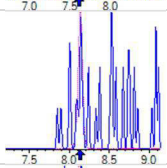
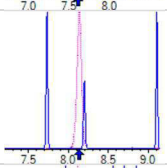
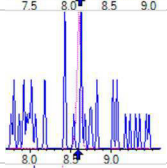
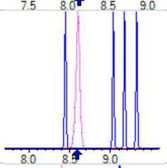
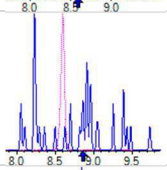
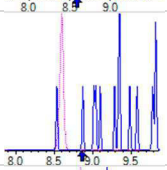
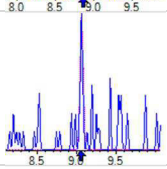
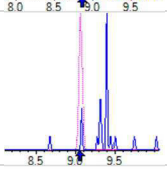
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.37 U	0.74	0.37	0.11	
PFEESA	0.37 U	0.74	0.37	0.10	
PFMPA	0.37 U	0.74	0.37	0.050	
PFMBA	0.37 U	0.74	0.37	0.084	
NFDHA	0.37 U	0.74	0.37	0.28	
9CL-PF3ONS	0.37 U	0.74	0.37	0.19	
11CL-PF3OUDS	0.37 U	0.74	0.37	0.19	
3:3FTCA	0.74 U	1.5	0.74	0.54	
5:3FTCA	0.74 U	1.5	0.74	0.41	
7:3FTCA	0.74 U	1.5	0.74	0.52	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-02RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (22)
Acquired: 2023/04/07 - 20:48

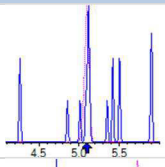
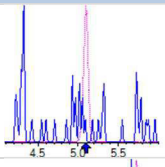
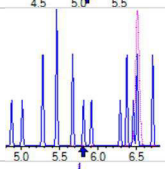
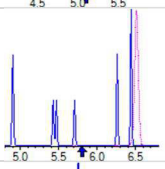
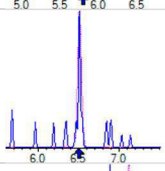
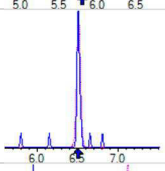
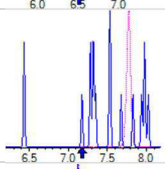
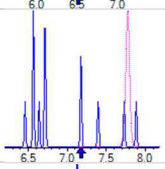
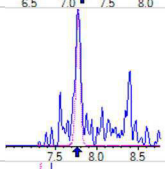
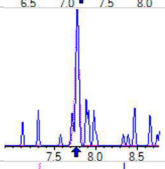
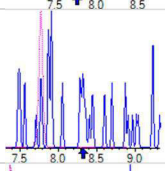
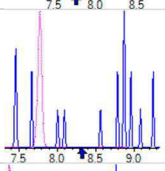
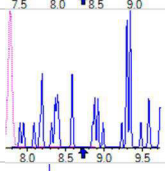
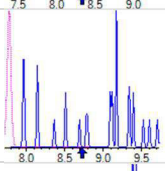
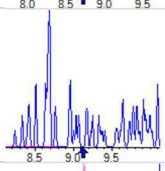
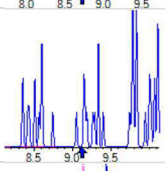
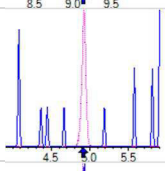
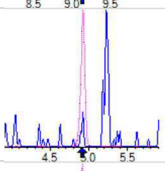
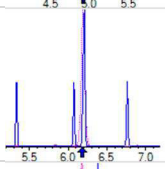
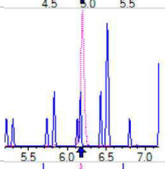
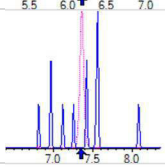
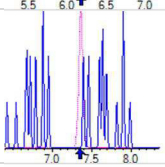
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-02RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (22)
Acquired: 2023/04/07 - 20:48

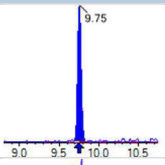
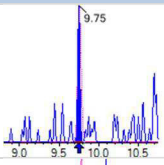
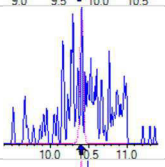
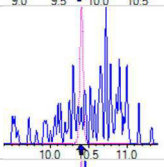
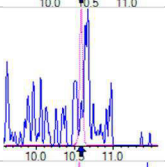
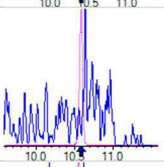
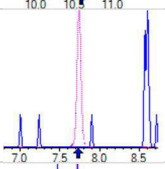
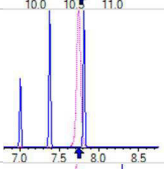
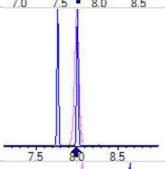
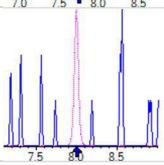
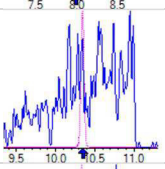
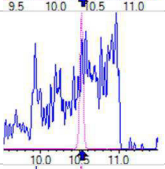
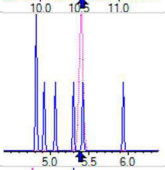
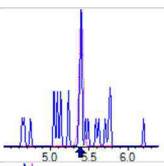
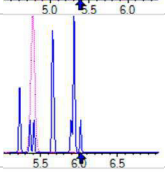
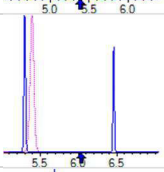
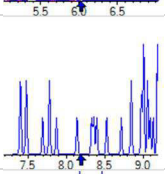
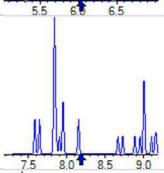
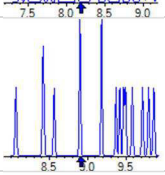
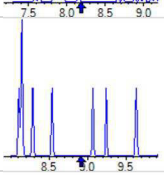
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-02RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (22)
Acquired: 2023/04/07 - 20:48

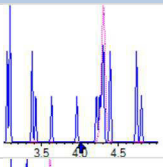
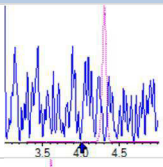
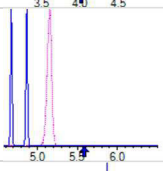
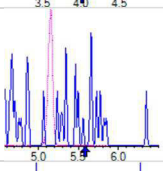
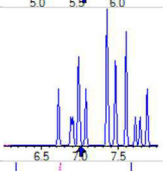
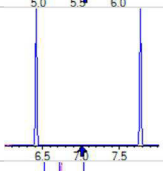
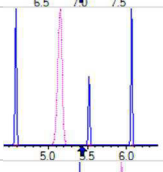
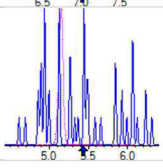
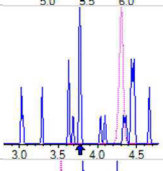
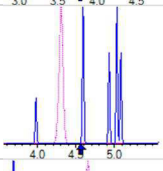
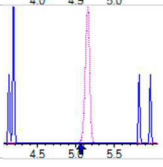
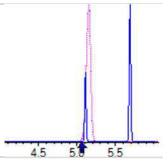
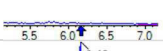
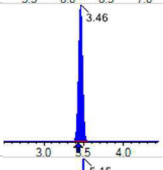
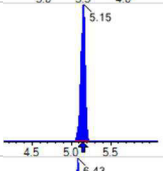
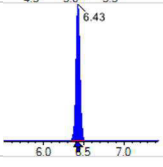
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 39927 (498.0 / 478.0) 979	(9.75 , 1.00) (0.00 , N/A , 0.4)	252.9 21.8	0.0245 100.4 105.5	0.0301	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-02RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (22)
Acquired: 2023/04/07 - 20:48

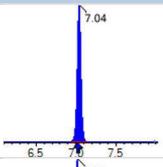
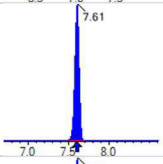
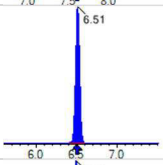
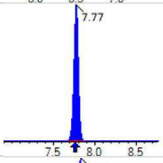
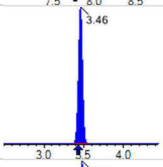
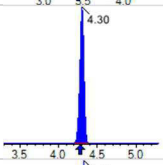
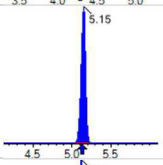
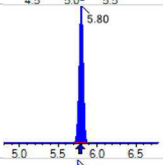
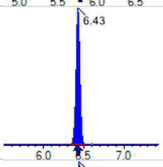
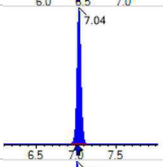
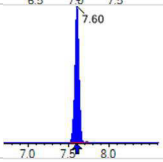
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 134321	(3.46 , N/A) (N/A , 0.03 , N/A)	1685.3	N/A	1.1782 [1.0000]	117.8% { 126.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 160021	(5.15 , N/A) (N/A , 0.01 , N/A)	34215.6	N/A	1.1596 [1.0000]	116.0% { 131.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 327248	(6.43 , N/A) (N/A , 0.01 , N/A)	11764.2	N/A	1.0536 [1.0000]	105.4% { 121.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-02RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (22)
Acquired: 2023/04/07 - 20:48

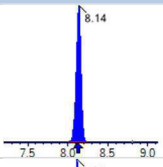
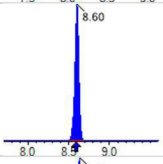
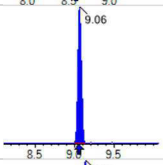
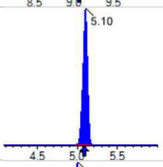
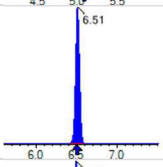
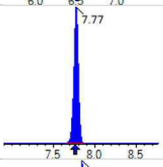
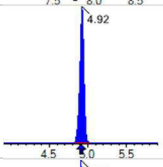
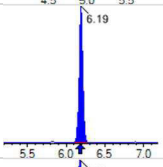
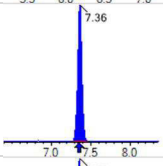
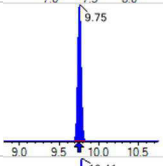
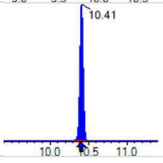
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 326988	(7.04 , N/A) (N/A , 0.01 , N/A)	2946.3	N/A	1.1092 [1.0000]	110.9% { 113.3% }			
13C2_PFDA_IIS	(515.0 / 470.1) 339353	(7.61 , N/A) (N/A , 0.01 , N/A)	327.1	N/A	1.0947 [1.0000]	109.5% { 112.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 468164	(6.51 , N/A) (N/A , 0.01 , N/A)	2156.3	N/A	1.0437 [1.0000]	104.4% { 108.9% }			
13C4_PFOS_IIS	(503.0 / 79.9) 783707	(7.77 , N/A) (N/A , 0.01 , N/A)	1973.8	N/A	1.1262 [1.0000]	112.6% { 121.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1164106	(3.46 , N/A) (N/A , 0.03 , N/A)	5114.0	N/A	8.0810 [8.0000]	101.0% { 118.4% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 994195	(4.30 , N/A) (N/A , 0.02 , N/A)	3925.6	N/A	3.9353 [4.0000]	98.4% { 119.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 573967	(5.15 , N/A) (N/A , 0.01 , N/A)	2820.6	N/A	1.8747 [2.0000]	93.7% { 120.6% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 558612	(5.80 , N/A) (N/A , 0.01 , N/A)	15964.5	N/A	1.8220 [2.0000]	91.1% { 110.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 648910	(6.43 , N/A) (N/A , 0.01 , N/A)	3000.3	N/A	1.9263 [2.0000]	96.3% { 106.2% }			
13C9_PFNA_EIS	(472.0 / 427.0) 303499	(7.04 , N/A) (N/A , 0.01 , N/A)	9844.7	N/A	0.9528 [1.0000]	95.3% { 102.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 332091	(7.60 , N/A) (N/A , 0.01 , N/A)	2295.4	N/A	0.8959 [1.0000]	89.6% { 94.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-02RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (22)
Acquired: 2023/04/07 - 20:48

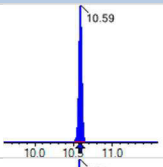
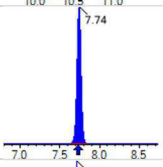
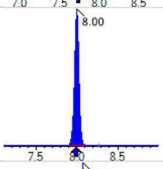
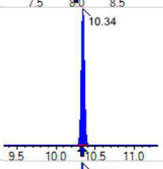
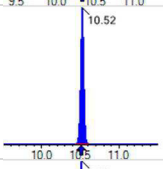
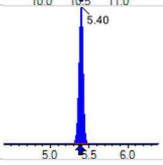
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 336833	(8.14 , N/A) (N/A , 0.01 , N/A)	2912.2	N/A	0.9426 [1.0000]	94.3% { 108.2% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 309238	(8.60 , N/A) (N/A , 0.01 , N/A)	3574.7	N/A	0.9569 [1.0000]	95.7% { 110.8% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 278446	(9.06 , N/A) (N/A , 0.01 , N/A)	1158.5	N/A	0.8996 [1.0000]	90.0% { 105.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1387667	(5.10 , N/A) (N/A , 0.02 , N/A)	3259.1	N/A	2.2695 [2.0000]	113.5% { 117.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 866818	(6.51 , N/A) (N/A , 0.01 , N/A)	2311.7	N/A	1.9806 [2.0000]	99.0% { 111.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1837905	(7.77 , N/A) (N/A , 0.01 , N/A)	3141.3	N/A	1.9263 [2.0000]	96.3% { 116.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 269377	(4.92 , N/A) (N/A , 0.01 , N/A)	1708.0	N/A	4.8126 [4.0000]	120.3% { 132.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 305309	(6.19 , N/A) (N/A , 0.01 , N/A)	1359.7	N/A	4.1090 [4.0000]	102.7% { 121.9% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 367843	(7.36 , N/A) (N/A , 0.01 , N/A)	1468.1	N/A	4.0216 [4.0000]	100.5% { 114.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3120686	(9.75 , N/A) (N/A , 0.01 , N/A)	3550.7	N/A	1.9332 [2.0000]	96.7% { 109.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 429871	(10.41 , N/A) (N/A , 0.01 , N/A)	1756.6	N/A	1.1741 [2.0000]	58.7% { 69.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 23C0205-02RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (22)
Acquired: 2023/04/07 - 20:48

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) 357102	(10.59 , N/A) (N/A , 0.01 , N/A)	3160.7	N/A	1.1912 [2.0000]	59.6% { 65.3% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 750433	(7.74 , N/A) (N/A , 0.01 , N/A)	4379.7	N/A	3.7484 [4.0000]	93.7% { 111.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 607830	(8.00 , N/A) (N/A , 0.01 , N/A)	13867.0	N/A	3.6971 [4.0000]	92.4% { 109.6% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1566920	(10.34 , N/A) (N/A , 0.01 , N/A)	1374.3	N/A	13.3209 [20.0000]	66.6% { 76.2% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2524956	(10.52 , N/A) (N/A , 0.01 , N/A)	1688.4	N/A	16.2220 [20.0000]	81.1% { 93.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1250550	(5.40 , N/A) (N/A , 0.01 , N/A)	2445.8	N/A	7.9599 [8.0000]	99.5% { 126.8% }			

QUALITY CONTROL

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23C0205
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-HDMW225303-WGN01LF-2303W3 (23C0205-01RE2) Lab File ID: S2023-04-07B (20)				Analyzed: 04/07/23 20:22
13C4-PFBA	27.6	99.8	10 - 130	
13C5-PFPEA	13.8	97.1	35 - 150	
13C5-PFHXA	6.90	101	55 - 150	
13C4-PFHPA	6.90	92.8	55 - 150	
13C8-PFOA	6.90	102	60 - 140	
13C9-PFNA	3.45	85.1	55 - 140	
13C6-PFDA	3.45	100	50 - 140	
13C7-PFUnA	3.45	108	30 - 140	
13C2-PFDOA	3.45	99.2	10 - 150	
13C2-PFTEDA	3.45	93.6	10 - 130	
13C3-PFBS	6.90	119	55 - 150	
13C3-PFHXS	6.90	99.7	55 - 150	
13C8-PFOS	6.90	94.2	45 - 140	
13C2-4:2FTS	13.8	128	60 - 200	
13C2-6:2FTS	13.8	109	60 - 200	
13C2-8:2FTS	13.8	93.9	50 - 200	
13C8-PFOSA	6.90	90.8	30 - 130	
D3-NMEFOSA	6.90	39.3	15 - 130	
D5-NETFOSA	6.90	36.5	10 - 130	
D3-NMEFOSAA	13.8	91.7	45 - 200	
D5-NETFOSAA	13.8	93.1	10 - 200	
D7-NMEFOSE	69.0	60.0	10 - 150	
D9-NETFOSE	69.0	68.8	10 - 150	
13C3-HFPO-DA	27.6	101	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23C0205
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW10-WGN01LF-2303W3 (23C0205-02RE2) ng/L Lab File ID: S2023-04-07B (22)				Analyzed: 04/07/23 20:48
13C4-PFBA	29.8	101	10 - 130	
13C5-PFPEA	14.9	98.4	35 - 150	
13C5-PFHXA	7.45	93.7	55 - 150	
13C4-PFHPA	7.45	91.1	55 - 150	
13C8-PFOA	7.45	96.3	60 - 140	
13C9-PFNA	3.72	95.3	55 - 140	
13C6-PFDA	3.72	89.6	50 - 140	
13C7-PFUnA	3.72	94.3	30 - 140	
13C2-PFDOA	3.72	95.7	10 - 150	
13C2-PFTEDA	3.72	90.0	10 - 130	
13C3-PFBS	7.45	113	55 - 150	
13C3-PFHXS	7.45	99.0	55 - 150	
13C8-PFOS	7.45	96.3	45 - 140	
13C2-4:2FTS	14.9	120	60 - 200	
13C2-6:2FTS	14.9	103	60 - 200	
13C2-8:2FTS	14.9	101	50 - 200	
13C8-PFOSA	7.45	96.7	30 - 130	
D3-NMEFOSA	7.45	58.7	15 - 130	
D5-NETFOSA	7.45	59.6	10 - 130	
D3-NMEFOSAA	14.9	93.7	45 - 200	
D5-NETFOSAA	14.9	92.4	10 - 200	
D7-NMEFOSE	74.5	66.6	10 - 150	
D9-NETFOSE	74.5	81.1	10 - 150	
13C3-HFPO-DA	29.8	99.5	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23C0205
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
Blank (BCD0035-BLK1) ng/L	Lab File ID: S2023-04-07B (7)			Analyzed: 04/07/23 17:34
13C4-PFBA	32.0	107	10 - 130	
13C5-PFPEA	16.0	128	35 - 150	
13C5-PFHXA	8.00	124	55 - 150	
13C4-PFHPA	8.00	123	55 - 150	
13C8-PFOA	8.00	107	60 - 140	
13C9-PFNA	4.00	121	55 - 140	
13C6-PFDA	4.00	108	50 - 140	
13C7-PFUnA	4.00	112	30 - 140	
13C2-PFDOA	4.00	102	10 - 150	
13C2-PFTEDA	4.00	103	10 - 130	
13C3-PFBS	8.00	106	55 - 150	
13C3-PFHXS	8.00	105	55 - 150	
13C8-PFOS	8.00	97.9	45 - 140	
13C2-4:2FTS	16.0	115	60 - 200	
13C2-6:2FTS	16.0	112	60 - 200	
13C2-8:2FTS	16.0	110	50 - 200	
13C8-PFOSA	8.00	96.2	30 - 130	
D3-NMEFOSA	8.00	56.9	15 - 130	
D5-NETFOSA	8.00	60.8	10 - 130	
D3-NMEFOSAA	16.0	100	45 - 200	
D5-NETFOSAA	16.0	95.6	10 - 200	
D7-NMEFOSE	80.0	72.8	10 - 150	
D9-NETFOSE	80.0	84.2	10 - 150	
13C3-HFPO-DA	32.0	123	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23C0205
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
LCS (BCD0035-BS1) ng/L	Lab File ID: S2023-04-07B (8)			Analyzed: 04/07/23 17:47
13C4-PFBA	32.0	103	10 - 130	
13C5-PFPEA	16.0	126	35 - 150	
13C5-PFHXA	8.00	121	55 - 150	
13C4-PFHPA	8.00	117	55 - 150	
13C8-PFOA	8.00	106	60 - 140	
13C9-PFNA	4.00	103	55 - 140	
13C6-PFDA	4.00	115	50 - 140	
13C7-PFUnA	4.00	125	30 - 140	
13C2-PFDOA	4.00	109	10 - 150	
13C2-PFTEDA	4.00	109	10 - 130	
13C3-PFBS	8.00	105	55 - 150	
13C3-PFHXS	8.00	104	55 - 150	
13C8-PFOS	8.00	101	45 - 140	
13C2-4:2FTS	16.0	109	60 - 200	
13C2-6:2FTS	16.0	107	60 - 200	
13C2-8:2FTS	16.0	101	50 - 200	
13C8-PFOSA	8.00	92.0	30 - 130	
D3-NMEFOSA	8.00	47.4	15 - 130	
D5-NETFOSA	8.00	49.0	10 - 130	
D3-NMEFOSAA	16.0	95.3	45 - 200	
D5-NETFOSAA	16.0	94.2	10 - 200	
D7-NMEFOSE	80.0	71.1	10 - 150	
D9-NETFOSE	80.0	79.7	10 - 150	
13C3-HFPO-DA	32.0	122	25 - 160	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 23C0205
Project: Red Hill AFFF Assessment Sampling / 60697810

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
MRL Check (BCD0035-MRL1) ng/L	Lab File ID: S2023-04-07B (9)			Analyzed: 04/07/23 18:00
13C4-PFBA	32.0	108	10 - 130	
13C5-PFPEA	16.0	125	35 - 150	
13C5-PFHXA	8.00	123	55 - 150	
13C4-PFHPA	8.00	126	55 - 150	
13C8-PFOA	8.00	106	60 - 140	
13C9-PFNA	4.00	104	55 - 140	
13C6-PFDA	4.00	107	50 - 140	
13C7-PFUnA	4.00	110	30 - 140	
13C2-PFDOA	4.00	94.7	10 - 150	
13C2-PFTEDA	4.00	107	10 - 130	
13C3-PFBS	8.00	112	55 - 150	
13C3-PFHXS	8.00	113	55 - 150	
13C8-PFOS	8.00	102	45 - 140	
13C2-4:2FTS	16.0	137	60 - 200	
13C2-6:2FTS	16.0	120	60 - 200	
13C2-8:2FTS	16.0	111	50 - 200	
13C8-PFOSA	8.00	96.6	30 - 130	
D3-NMEFOSA	8.00	51.1	15 - 130	
D5-NETFOSA	8.00	54.8	10 - 130	
D3-NMEFOSAA	16.0	97.3	45 - 200	
D5-NETFOSAA	16.0	97.8	10 - 200	
D7-NMEFOSE	80.0	67.1	10 - 150	
D9-NETFOSE	80.0	74.3	10 - 150	
13C3-HFPO-DA	32.0	122	25 - 160	

METHOD BLANK SUMMARY

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23C0205
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Blank ID:	BCD0035-BLK1	Batch:	BCD0035
Prepared:	04/04/2023 12:20		

Client Sample ID	Laboratory Sample ID	Lab File ID	Time Analyzed
LCS	BCD0035-BS1	S2023-04-07B (8)	17:47
MRL Check	BCD0035-MRL1	S2023-04-07B (9)	18:00
AF-HDMW225303-WGN01LF-2303W3	23C0205-01RE2	S2023-04-07B (20)	20:22
AF-RHMW10-WGN01LF-2303W3	23C0205-02RE2	S2023-04-07B (22)	20:48

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0035-BLK1	File ID:	S2023-04-07B (7)
Sampled:		Prepared:	04/04/23 12:20	Analyzed:	04/07/23 17:34
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001
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	0.20 U	0.40	0.20	0.064	U
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:	23C0205
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0035-BLK1	File ID:	S2023-04-07B (7)
Sampled:		Prepared:	04/04/23 12:20	Analyzed:	04/07/23 17:34
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001
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:	23C0205
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Preparation:	EPA 1633
Batch:	BCD0035	Laboratory ID:	BCD0035-BS1
Column:			

ANALYTE	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC.	QC LIMITS REC.
PFBA	16.0	16.7	104	58 - 148
PFPEA	8.00	7.86	98.2	54 - 152
PFHXA	4.00	4.39	110	55 - 152
PFHPA	4.00	4.41	110	54 - 154
PFOA	4.00	3.99	99.9	52 - 161
PFNA	4.00	4.44	111	59 - 149
PFDA	4.00	3.74	93.4	52 - 147
PFUnA	4.00	3.83	95.8	48 - 159
PFDOA	4.00	4.66	116	64 - 142
PFTRDA	4.00	4.40	110	49 - 148
PFTEDA	4.00	4.22	105	47 - 161
PFBS	3.54	3.65	103	62 - 144
PFPES	3.76	3.88	103	59 - 151
PFHXS	3.66	3.55	97.0	57 - 146
PFHPS	3.82	3.61	94.4	55 - 152
PFOS	3.72	3.54	95.2	58 - 149
PFNS	3.84	3.80	98.9	52 - 148
PFDS	3.86	3.83	99.3	51 - 147
PFDOS	3.88	3.78	97.5	36 - 145
4:2FTS	15.0	14.1	94.2	67 - 146
6:2FTS	15.2	16.4	108	61 - 151
8:2FTS	15.4	17.3	112	63 - 152
PFOSA	4.00	4.20	105	61 - 148
NMeFOSA	16.0	17.7	111	63 - 145
NEtFOSA	16.0	16.7	104	65 - 139
NMeFOSAA	4.00	3.95	98.9	58 - 144
NEtFOSAA	4.00	4.20	105	59 - 146
NMeFOSE	16.0	15.9	99.4	71 - 136
NEtFOSE	16.0	15.4	96.2	69 - 137
HFPO-DA	8.00	8.10	101	63 - 144
ADONA	7.56	8.22	109	68 - 146
PFEESA	7.12	7.19	101	56 - 151
PFMPA	8.00	7.40	92.5	51 - 145
PFMBA	8.00	7.36	92.0	55 - 148

LCS / LCS DUPLICATE RECOVERY

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23C0205
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Matrix:	Water	Preparation:	EPA 1633
Batch:	BCD0035	Laboratory ID:	BCD0035-BS1
Column:			

ANALYTE	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC.	QC LIMITS REC.
NFDHA	8.00	8.02	100	48 - 161
9CL-PF3ONS	7.48	7.72	103	56 - 156
11CL-PF3OUDS	7.56	7.22	95.6	46 - 156
3:3FTCA	16.0	13.9	87.0	62 - 129
5:3FTCA	16.0	17.0	106	63 - 134
7:3FTCA	16.0	14.6	91.4	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 = 0.43686 x (std. dev. = 0.00909) (weighting: None)	%RSE=2.1
PFPeA	(263.0 / 219.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.47635 x (std. dev. = 0.02526) (weighting: None)	%RSE=5.3
PFHxA	(313.0 / 269.0)	13C5_PFHxA_EIS	1.0000	1.0000	y = 0.44601 x (std. dev. = 0.01103) (weighting: None)	%RSE=2.5
PFHpA	(363.0 / 319.0)	13C4_PFHpA_EIS	1.0000	1.0000	y = 0.45028 x (std. dev. = 0.01209) (weighting: None)	%RSE=2.7
PFOA	(413.0 / 369.0)	13C8_PFOA_EIS	1.0000	1.0000	y = 0.47637 x (std. dev. = 0.02861) (weighting: None)	%RSE=6.0
PFNA	(463.0 / 419.0)	13C9_PFNA_EIS	1.0000	1.0000	y = 0.88105 x (std. dev. = 0.05597) (weighting: None)	%RSE=6.4
PFDA	(513.0 / 469.0)	13C6_PFDA_EIS	1.0000	1.0000	y = 0.94807 x (std. dev. = 0.06923) (weighting: None)	%RSE=7.3
PFUnA	(563.0 / 519.0)	13C7_PFUnA_EIS	1.0000	1.0000	y = 0.80292 x (std. dev. = 0.04853) (weighting: None)	%RSE=6.0
PFDoA	(613.0 / 569.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.83711 x (std. dev. = 0.04669) (weighting: None)	%RSE=5.6
PFTrDA	(663.0 / 619.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.74583 x (std. dev. = 0.06481) (weighting: None)	%RSE=8.7
PFTeDA	(713.0 / 669.0)	13C2_PFTeDA_EIS	1.0000	1.0000	y = 0.86075 x (std. dev. = 0.03724) (weighting: None)	%RSE=4.3
PFBS	(299.0 / 80.0)	13C3_PFBS_EIS	1.0000	0.8847	y = 0.29211 x (std. dev. = 0.00608) (weighting: None)	%RSE=2.1
PFPeS	(349.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9384	y = 0.81068 x (std. dev. = 0.04203) (weighting: None)	%RSE=5.2
PFHxS	(399.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9110	y = 0.72923 x (std. dev. = 0.02044) (weighting: None)	%RSE=2.8
PFHpS	(449.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9514	y = 0.42583 x (std. dev. = 0.02138) (weighting: None)	%RSE=5.0
PFOS	(499.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9275	y = 0.51823 x (std. dev. = 0.01313) (weighting: None)	%RSE=2.5
PFNS	(549.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9599	y = 0.54035 x (std. dev. = 0.02620) (weighting: None)	%RSE=4.8
PFDS	(599.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9631	y = 0.60770 x (std. dev. = 0.03468) (weighting: None)	%RSE=5.7
PFDoS	(699.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9696	y = 0.50538 x (std. dev. = 0.02533) (weighting: None)	%RSE=5.0
4:2FTS	(327.0 / 307.0)	13C2_4:2FTS_EIS	4.0000	0.9345	y = 2.82868 x (std. dev. = 0.20737) (weighting: None)	%RSE=7.3
6:2FTS	(427.0 / 407.0)	13C2_6:2FTS_EIS	4.0000	0.9490	y = 1.39395 x (std. dev. = 0.07109) (weighting: None)	%RSE=5.1
8:2FTS	(527.0 / 507.0)	13C2_8:2FTS_EIS	4.0000	0.9583	y = 1.37301 x (std. dev. = 0.11032) (weighting: None)	%RSE=8.0
PFOSA	(498.0 / 78.0)	13C8_PFOSA_EIS	1.0000	1.0000	y = 0.41602 x (std. dev. = 0.02618) (weighting: None)	%RSE=6.3
NMeFOSA	(512.0 / 219.0)	D3_NMeFOSA_EIS	4.0000	1.0000	y = 1.70065 x (std. dev. = 0.20327) (weighting: None)	%RSE=12.0
NEtFOSA	(526.0 / 219.0)	D5_NEtFOSA_EIS	4.0000	1.0000	y = 2.09929 x (std. dev. = 0.05348) (weighting: None)	%RSE=2.5
NMeFOSAA	(570.0 / 419.0)	D3_MeFOSAA_EIS	1.0000	1.0000	y = 0.21941 x (std. dev. = 0.02363) (weighting: None)	%RSE=10.8
NEtFOSAA	(584.0 / 419.0)	D5_EtFOSAA_EIS	1.0000	1.0000	y = 0.23613 x (std. dev. = 0.03823) (weighting: None)	%RSE=16.2
NMeFOSE	(616.0 / 59.0)	D7_NMeFOSE_EIS	4.0000	1.0000	y = 0.21836 x (std. dev. = 0.00561) (weighting: None)	%RSE=2.6
NEtFOSE	(630.0 / 59.0)	D9_NEtFOSE_EIS	4.0000	1.0000	y = 0.20179 x (std. dev. = 0.00821) (weighting: None)	%RSE=4.1
HFPO-DA	(285.0 / 169.0)	13C3_HFPODA_EIS	2.0000	1.0000	y = 0.21118 x (std. dev. = 0.01643) (weighting: None)	%RSE=7.8
ADONA	(377.0 / 85.0)	13C3_HFPODA_EIS	2.0000	0.9427	y = 0.76938 x (std. dev. = 0.06398) (weighting: None)	%RSE=8.3
9Cl-Pf3ONS	(531.0 / 351.0)	13C3_HFPODA_EIS	2.0000	0.9333	y = 2.07483 x (std. dev. = 0.25907) (weighting: None)	%RSE=12.5
11Cl-PF3OUDS	(631.0 / 451.0)	13C3_HFPODA_EIS	2.0000	0.9432	y = 1.34695 x (std. dev. = 0.14453) (weighting: None)	%RSE=10.7
3:3FTCA	(241.0 / 177.0)	13C5_PFPeA_EIS	4.0000	1.0000	y = 0.02599 x (std. dev. = 0.00254) (weighting: None)	%RSE=9.8
5:3FTCA	(341.0 / 236.7)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.31322 x (std. dev. = 0.02640) (weighting: None)	%RSE=8.4
7:3FTCA	(441.0 / 317.0)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.49960 x (std. dev. = 0.04686) (weighting: None)	%RSE=9.4
PFEESA	(315.0 / 135.0)	13C5_PFHxA_EIS	2.0000	0.8925	y = 0.96326 x (std. dev. = 0.05749) (weighting: None)	%RSE=6.0
PFMPA	(229.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.11067 x (std. dev. = 0.00686) (weighting: None)	%RSE=6.2
PFMBA	(279.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.37186 x (std. dev. = 0.01956) (weighting: None)	%RSE=5.3
NFDHA	(295.0 / 201.0)	13C5_PFHxA_EIS	2.0000	1.0000	y = 0.53125 x (std. dev. = 0.02588) (weighting: None)	%RSE=4.9
TDCA	(499.0 / 80.0)	13C8_PFOS_EIS	1.0000	1.0000	y = 0.52097 x (std. dev. = 0.03341) (weighting: None)	%RSE=6.4
13C3_PFBA_IIS	(216.0 / 172.0)	13C3_PFBA_IIS	1.0000	1.0000	y = 194309.4566 x	%RSD=14.7
13C2_PFHxA_IIS	(315.0 / 270.0)	13C2_PFHxA_IIS	1.0000	1.0000	y = 268611.0739 x	%RSD=7.5
13C4_PFOA_IIS	(417.0 / 372.0)	13C4_PFOA_IIS	1.0000	1.0000	y = 449732.8927 x	%RSD=8.5
13C5_PFNA_IIS	(468.0 / 423.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 402245.3321 x	%RSD=9.7
13C2_PFDA_IIS	(515.0 / 470.1)	13C2_PFDA_IIS	1.0000	1.0000	y = 404897.0955 x	%RSD=7.2
18O2_PFHxS_IIS	(403.0 / 83.9)	18O2_PFHxS_IIS	1.0000	1.0000	y = 642600.1384 x	%RSD=6.7

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 = 789840.3208 x	%RSD=6.7
13C4_PFBA_EIS	(217.0 / 172.0)	13C3_PFBA_IIS	8.0000	1.0000	y = 8.3567 x	%RSD=4.2
13C5_PFPeA_EIS	(268.0 / 223.0)	13C2_PFHxA_IIS	4.0000	1.0000	y = 4.7044 x	%RSD=5.1
13C5_PFHxA_EIS	(318.0 / 273.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 2.8604 x	%RSD=5.9
13C4_PFHpA_EIS	(367.0 / 322.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 2.3783 x	%RSD=4.0
13C8_PFOA_EIS	(421.0 / 376.0)	13C4_PFOA_IIS	2.0000	1.0000	y = 1.8304 x	%RSD=4.2
13C9_PFNA_EIS	(472.0 / 427.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 0.9155 x	%RSD=4.6
13C6_PFDA_EIS	(519.0 / 474.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.0757 x	%RSD=5.1
13C7_PFUnA_EIS	(570.0 / 525.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.1204 x	%RSD=7.6
13C2_PFDoA_EIS	(615.0 / 570.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.0584 x	%RSD=6.4
13C2_PFTeDA_EIS	(715.0 / 670.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.0395 x	%RSD=10.0
13C3_PFBS_EIS	(302.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 2.9523 x	%RSD=6.4
13C3_PFHxS_EIS	(402.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 1.6743 x	%RSD=3.3
13C8_PFOS_EIS	(507.0 / 80.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 2.3642 x	%RSD=3.9
13C2_4:2FTS_EIS	(329.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.5986 x	%RSD=6.7
13C2_6:2FTS_EIS	(429.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.6958 x	%RSD=3.2
13C2_8:2FTS_EIS	(529.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.7849 x	%RSD=5.4
13C8_PFOSA_EIS	(506.0 / 78.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 4.3488 x	%RSD=5.8
D3_NMeFOSA_EIS	(515.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.9646 x	%RSD=9.3
D5_NEtFOSA_EIS	(531.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.8358 x	%RSD=3.4
D3_MeFOSAA_EIS	(573.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 1.0671 x	%RSD=4.4
D5_EtFOSAA_EIS	(589.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 0.8466 x	%RSD=6.7
D7_NMeFOSE_EIS	(623.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 2.9687 x	%RSD=3.8
D9_NEtFOSE_EIS	(639.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 3.9143 x	%RSD=8.0
13C3_HFPODA_EIS	(287.0 / 169.0)	13C2_PFHxA_IIS	8.0000	1.0000	y = 5.4587 x	%RSD=6.1

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

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

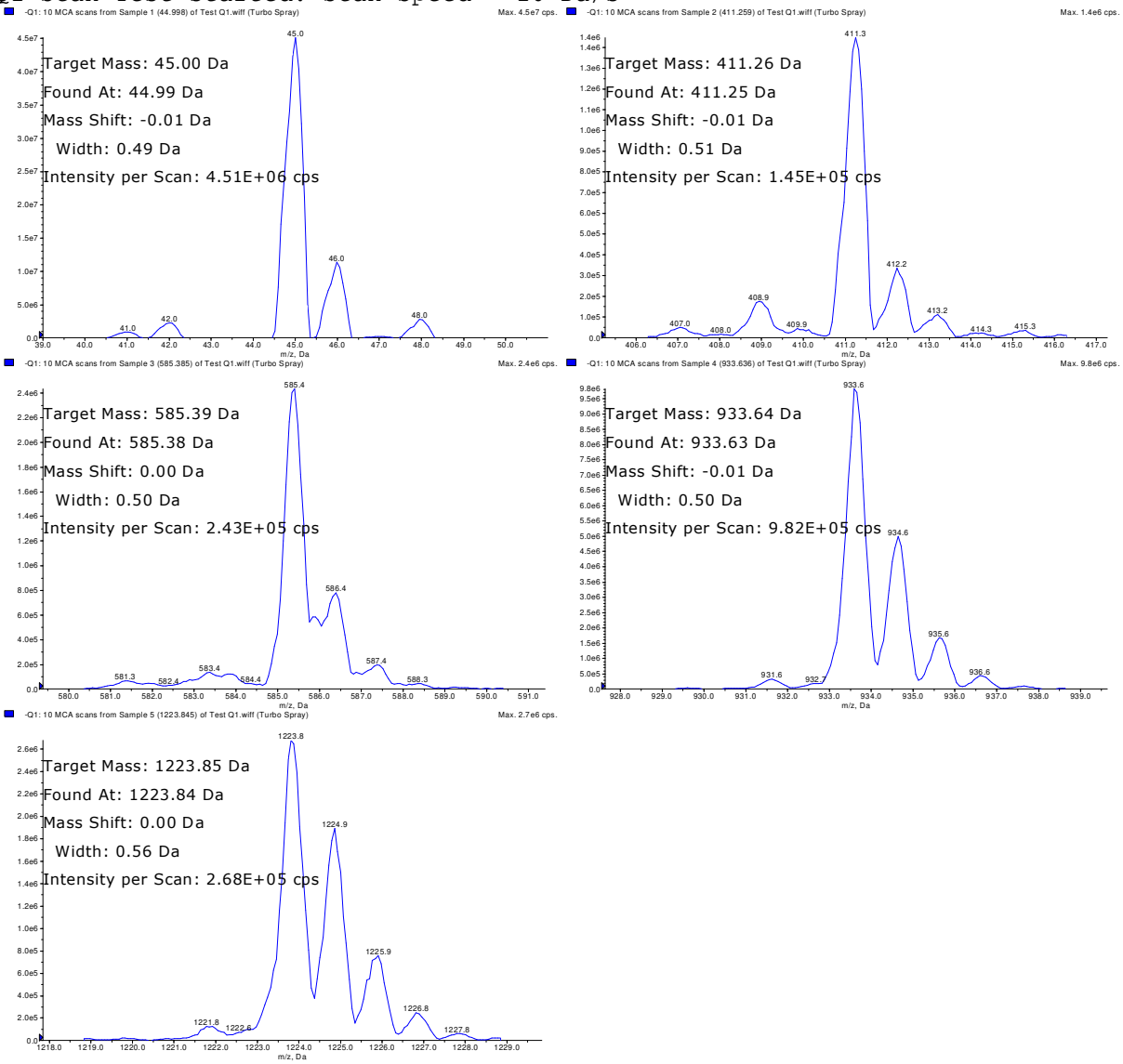
$$\text{Acid Factor} = \frac{\text{Moleculat weight Acid}}{\text{Molecular weight Salt}}$$

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

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

Tune 2021-11-23 Q1 NEG @ 10Da/s

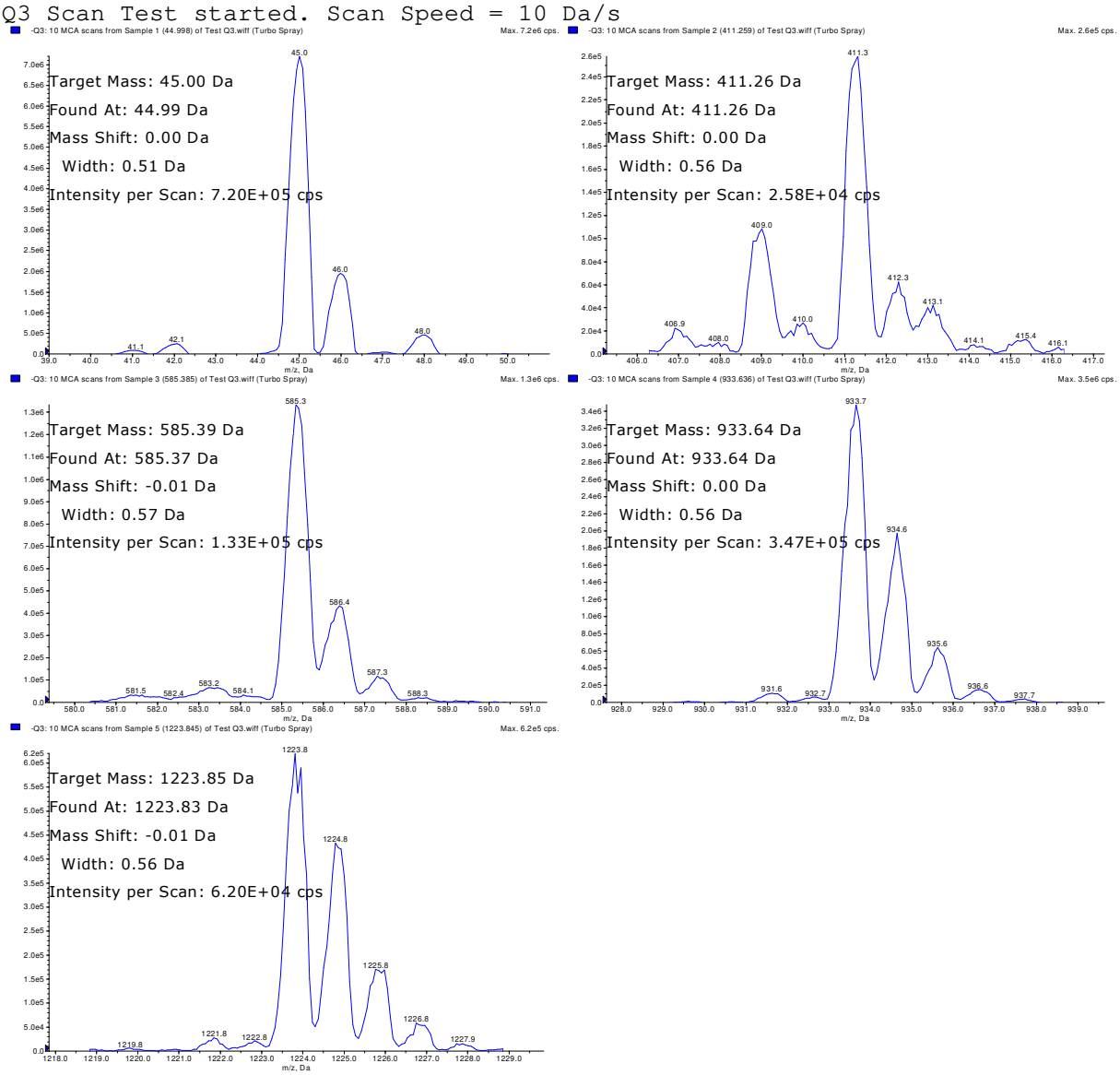
Q1 Scan Test started. Scan Speed = 10 Da/s



Target Mass	Found At	Delta	Width	Intensity	0.4<Width<0.6
45.00	44.99	-0.01	0.49	4.51E+06	PASS
411.26	411.25	-0.01	0.51	1.45E+05	PASS
585.39	585.38	0.00	0.50	2.43E+05	PASS
933.64	933.63	-0.01	0.50	9.82E+05	PASS
1223.85	1223.84	0.00	0.56	2.68E+05	PASS

Tune 2021-11-23 Q3 NEG @ 10Da/s

Q3 Scan Test started. Scan Speed = 10 Da/s



Target Mass	Found At	Delta	Width	Intensity	0.4<Width<0.6
45.00	44.99	0.00	0.51	7.20E+05	PASS
411.26	411.26	0.00	0.56	2.58E+04	PASS
585.39	585.37	-0.01	0.57	1.33E+05	PASS
933.64	933.64	0.00	0.56	3.47E+05	PASS
1223.85	1223.83	-0.01	0.56	6.20E+04	PASS

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 = 0.43469 x (std. dev. = 0.01229) (weighting: None)	%RSE=2.8
PFPeA	(263.0 / 219.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.46979 x (std. dev. = 0.01929) (weighting: None)	%RSE=4.1
PFHxA	(313.0 / 269.0)	13C5_PFHxA_EIS	1.0000	1.0000	y = 0.48124 x (std. dev. = 0.02821) (weighting: None)	%RSE=5.9
PFHpA	(363.0 / 319.0)	13C4_PFHpA_EIS	1.0000	1.0000	y = 0.42894 x (std. dev. = 0.03192) (weighting: None)	%RSE=7.4
PFOA	(413.0 / 369.0)	13C8_PFOA_EIS	1.0000	1.0000	y = 0.49661 x (std. dev. = 0.06193) (weighting: None)	%RSE=12.5
PFNA	(463.0 / 419.0)	13C9_PFNA_EIS	1.0000	1.0000	y = 0.90364 x (std. dev. = 0.06805) (weighting: None)	%RSE=7.5
PFDA	(513.0 / 469.0)	13C6_PFDA_EIS	1.0000	1.0000	y = 0.99037 x (std. dev. = 0.02988) (weighting: None)	%RSE=3.0
PFUnA	(563.0 / 519.0)	13C7_PFUnA_EIS	1.0000	1.0000	y = 0.89593 x (std. dev. = 0.07931) (weighting: None)	%RSE=8.9
PFDoA	(613.0 / 569.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.86901 x (std. dev. = 0.04523) (weighting: None)	%RSE=5.2
PFTrDA	(663.0 / 619.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.80458 x (std. dev. = 0.10401) (weighting: None)	%RSE=12.9
PFTeDA	(713.0 / 669.0)	13C2_PFTeDA_EIS	1.0000	1.0000	y = 0.89669 x (std. dev. = 0.02906) (weighting: None)	%RSE=3.2
PFBS	(299.0 / 80.0)	13C3_PFBS_EIS	1.0000	0.8847	y = 0.31588 x (std. dev. = 0.01382) (weighting: None)	%RSE=4.4
PFPeS	(349.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9384	y = 0.83878 x (std. dev. = 0.05754) (weighting: None)	%RSE=6.9
PFHxS	(399.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9110	y = 0.66743 x (std. dev. = 0.04093) (weighting: None)	%RSE=6.1
PFHpS	(449.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9514	y = 0.39687 x (std. dev. = 0.02398) (weighting: None)	%RSE=6.0
PFOS	(499.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9275	y = 0.52748 x (std. dev. = 0.05200) (weighting: None)	%RSE=9.9
PFNS	(549.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9599	y = 0.48124 x (std. dev. = 0.02028) (weighting: None)	%RSE=4.2
PFDS	(599.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9631	y = 0.58486 x (std. dev. = 0.04689) (weighting: None)	%RSE=8.0
PFDoS	(699.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9696	y = 0.47448 x (std. dev. = 0.02516) (weighting: None)	%RSE=5.3
4:2FTS	(327.0 / 307.0)	13C2_4:2FTS_EIS	4.0000	0.9345	y = 2.86754 x (std. dev. = 0.22784) (weighting: None)	%RSE=7.9
6:2FTS	(427.0 / 407.0)	13C2_6:2FTS_EIS	4.0000	0.9490	y = 1.46346 x (std. dev. = 0.11522) (weighting: None)	%RSE=7.9
8:2FTS	(527.0 / 507.0)	13C2_8:2FTS_EIS	4.0000	0.9583	y = 1.35654 x (std. dev. = 0.13432) (weighting: None)	%RSE=9.9
PFOSA	(498.0 / 78.0)	13C8_PFOSA_EIS	1.0000	1.0000	y = 0.42460 x (std. dev. = 0.03657) (weighting: None)	%RSE=8.6
NMeFOSA	(512.0 / 219.0)	D3_NMeFOSA_EIS	4.0000	1.0000	y = 1.63914 x (std. dev. = 0.18071) (weighting: None)	%RSE=11.0
NEtFOSA	(526.0 / 219.0)	D5_NEtFOSA_EIS	4.0000	1.0000	y = 2.16664 x (std. dev. = 0.06455) (weighting: None)	%RSE=3.0
NMeFOSAA	(570.0 / 419.0)	D3_MeFOSAA_EIS	1.0000	1.0000	y = 0.20663 x (std. dev. = 0.00889) (weighting: None)	%RSE=4.3
NEtFOSAA	(584.0 / 419.0)	D5_EtFOSAA_EIS	1.0000	1.0000	y = 0.22005 x (std. dev. = 0.01761) (weighting: None)	%RSE=8.0
NMeFOSE	(616.0 / 59.0)	D7_NMeFOSE_EIS	4.0000	1.0000	y = 0.20752 x (std. dev. = 0.00574) (weighting: None)	%RSE=2.8
NEtFOSE	(630.0 / 59.0)	D9_NEtFOSE_EIS	4.0000	1.0000	y = 0.19573 x (std. dev. = 0.00496) (weighting: None)	%RSE=2.5
HFPO-DA	(285.0 / 169.0)	13C3_HFPODA_EIS	2.0000	1.0000	y = 0.23809 x (std. dev. = 0.01009) (weighting: None)	%RSE=4.2
ADONA	(377.0 / 85.0)	13C3_HFPODA_EIS	2.0000	0.9427	y = 0.82053 x (std. dev. = 0.07790) (weighting: None)	%RSE=9.5
9Cl-Pf3ONS	(531.0 / 351.0)	13C3_HFPODA_EIS	2.0000	0.9333	y = 2.40818 x (std. dev. = 0.35080) (weighting: None)	%RSE=14.6
11Cl-PF3OUDS	(631.0 / 451.0)	13C3_HFPODA_EIS	2.0000	0.9432	y = 1.60382 x (std. dev. = 0.22125) (weighting: None)	%RSE=13.8
3:3FTCA	(241.0 / 177.0)	13C5_PFPeA_EIS	4.0000	1.0000	y = 0.04019 x (std. dev. = 0.00292) (weighting: None)	%RSE=7.3
5:3FTCA	(341.0 / 236.7)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.33306 x (std. dev. = 0.02816) (weighting: None)	%RSE=8.5
7:3FTCA	(441.0 / 317.0)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.60655 x (std. dev. = 0.03541) (weighting: None)	%RSE=5.8
PFEESA	(315.0 / 135.0)	13C5_PFHxA_EIS	2.0000	0.8925	y = 1.12744 x (std. dev. = 0.13527) (weighting: None)	%RSE=12.0
PFMPA	(229.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.10483 x (std. dev. = 0.00704) (weighting: None)	%RSE=6.7
PFMBA	(279.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.32807 x (std. dev. = 0.01738) (weighting: None)	%RSE=5.3
NFDHA	(295.0 / 201.0)	13C5_PFHxA_EIS	2.0000	1.0000	y = 0.48569 x (std. dev. = 0.03203) (weighting: None)	%RSE=6.6
TDCA	(499.0 / 80.0)	13C8_PFOS_EIS	1.0000	1.0000	y = 0.47803 x (std. dev. = 0.05012) (weighting: None)	%RSE=10.5
13C3_PFBA_IIS	(216.0 / 172.0)	13C3_PFBA_IIS	1.0000	1.0000	y = 114005.5553 x	%RSD=15.3
13C2_PFHxA_IIS	(315.0 / 270.0)	13C2_PFHxA_IIS	1.0000	1.0000	y = 138002.2916 x	%RSD=12.7
13C4_PFOA_IIS	(417.0 / 372.0)	13C4_PFOA_IIS	1.0000	1.0000	y = 310603.8337 x	%RSD=7.0
13C5_PFNA_IIS	(468.0 / 423.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 294801.9603 x	%RSD=4.7
13C2_PFDA_IIS	(515.0 / 470.1)	13C2_PFDA_IIS	1.0000	1.0000	y = 309997.1649 x	%RSD=8.4
18O2_PFHxS_IIS	(403.0 / 83.9)	18O2_PFHxS_IIS	1.0000	1.0000	y = 448574.2140 x	%RSD=4.2

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 = 695912.8076 x	%RSD=9.3
13C4_PFBA_EIS	(217.0 / 172.0)	13C3_PFBA_IIS	8.0000	1.0000	y = 8.5797 x	%RSD=4.7
13C5_PFPeA_EIS	(268.0 / 223.0)	13C2_PFHxA_IIS	4.0000	1.0000	y = 6.3151 x	%RSD=9.1
13C5_PFHxA_EIS	(318.0 / 273.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 3.8265 x	%RSD=8.6
13C4_PFHpA_EIS	(367.0 / 322.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 3.8319 x	%RSD=9.9
13C8_PFOA_EIS	(421.0 / 376.0)	13C4_PFOA_IIS	2.0000	1.0000	y = 2.0588 x	%RSD=5.2
13C9_PFNA_EIS	(472.0 / 427.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 0.9742 x	%RSD=4.5
13C6_PFDA_EIS	(519.0 / 474.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.0923 x	%RSD=6.3
13C7_PFUnA_EIS	(570.0 / 525.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.0530 x	%RSD=6.0
13C2_PFDoA_EIS	(615.0 / 570.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 0.9523 x	%RSD=5.3
13C2_PFTeDA_EIS	(715.0 / 670.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 0.9121 x	%RSD=7.3
13C3_PFBS_EIS	(302.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 2.6121 x	%RSD=8.3
13C3_PFHxS_EIS	(402.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 1.8697 x	%RSD=5.2
13C8_PFOS_EIS	(507.0 / 80.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 2.4348 x	%RSD=4.2
13C2_4:2FTS_EIS	(329.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.4782 x	%RSD=7.4
13C2_6:2FTS_EIS	(429.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.6348 x	%RSD=5.5
13C2_8:2FTS_EIS	(529.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.7815 x	%RSD=6.9
13C8_PFOSA_EIS	(506.0 / 78.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 4.1196 x	%RSD=4.6
D3_NMeFOSA_EIS	(515.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.9344 x	%RSD=13.2
D5_NEtFOSA_EIS	(531.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.7650 x	%RSD=6.8
D3_MeFOSAA_EIS	(573.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 1.0218 x	%RSD=4.8
D5_EtFOSAA_EIS	(589.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 0.8391 x	%RSD=7.8
D7_NMeFOSE_EIS	(623.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 3.0019 x	%RSD=5.9
D9_NEtFOSE_EIS	(639.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 3.9722 x	%RSD=6.1
13C3_HFPODA_EIS	(287.0 / 169.0)	13C2_PFHxA_IIS	8.0000	1.0000	y = 7.8543 x	%RSD=8.8

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

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

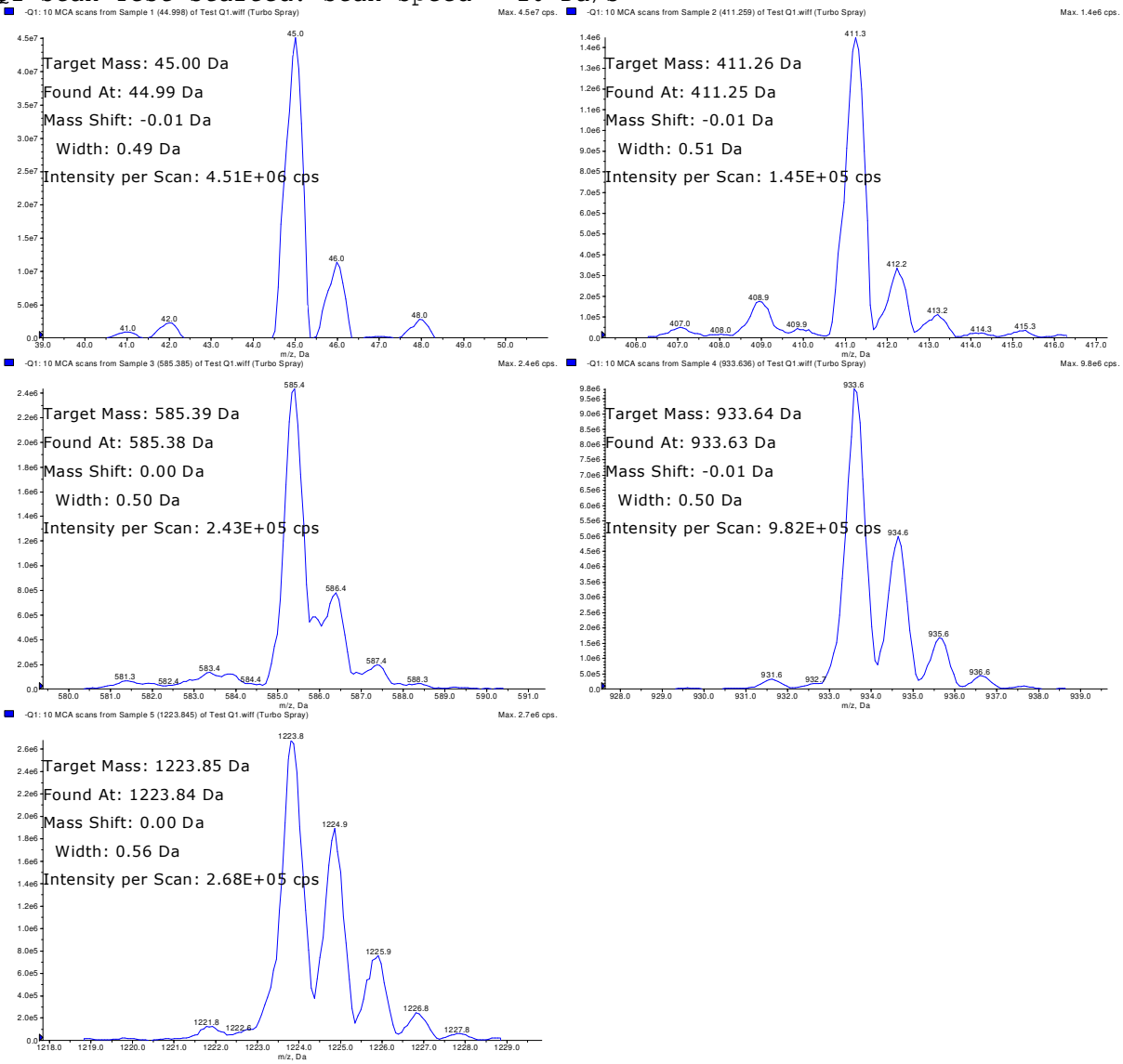
$$\text{Acid Factor} = \frac{\text{Moleculat weight Acid}}{\text{Molecular weight Salt}}$$

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

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

Tune 2021-11-23 Q1 NEG @ 10Da/s

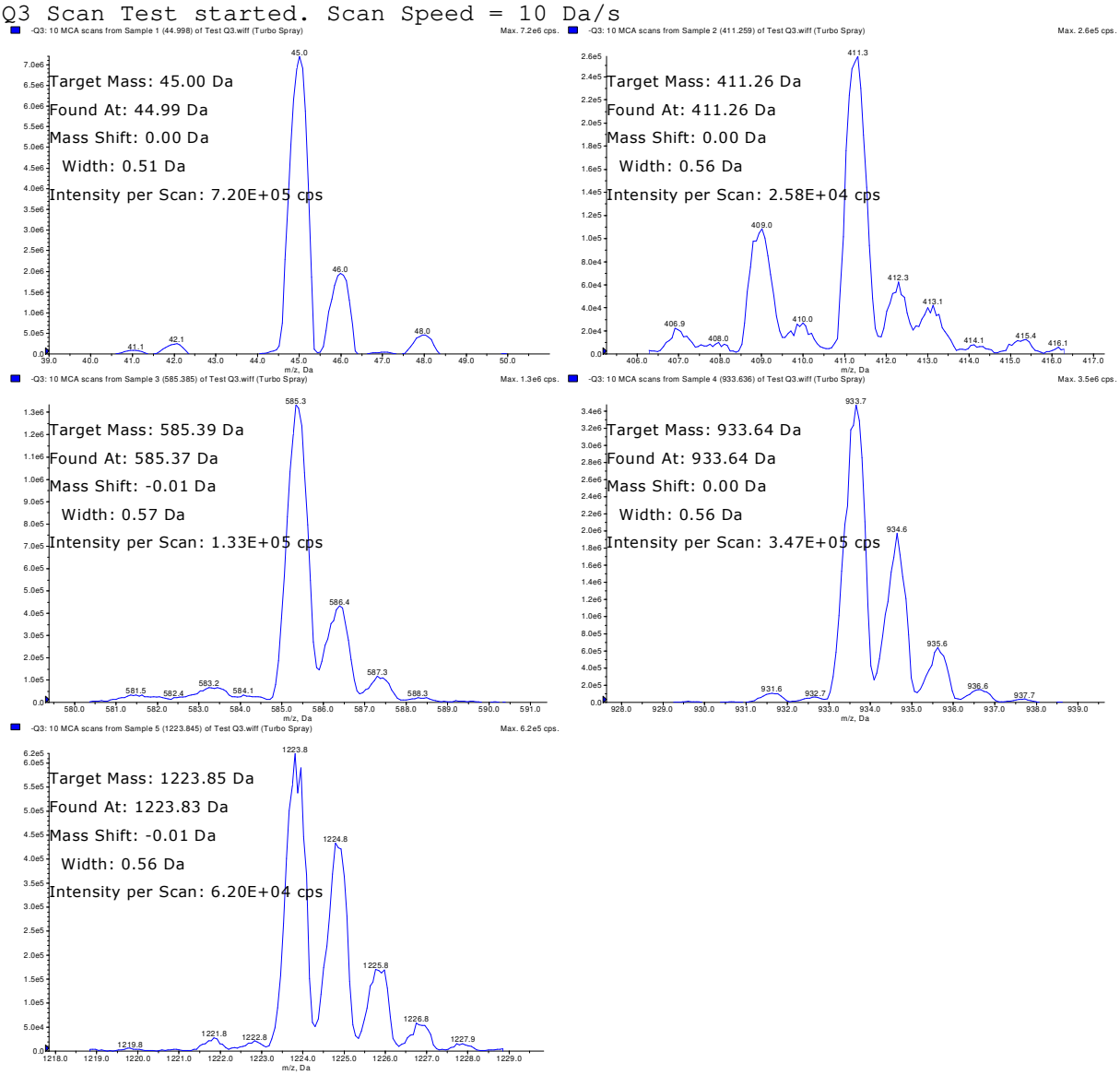
Q1 Scan Test started. Scan Speed = 10 Da/s



Target Mass	Found At	Delta	Width	Intensity	0.4<Width<0.6
45.00	44.99	-0.01	0.49	4.51E+06	PASS
411.26	411.25	-0.01	0.51	1.45E+05	PASS
585.39	585.38	0.00	0.50	2.43E+05	PASS
933.64	933.63	-0.01	0.50	9.82E+05	PASS
1223.85	1223.84	0.00	0.56	2.68E+05	PASS

Tune 2021-11-23 Q3 NEG @ 10Da/s

Q3 Scan Test started. Scan Speed = 10 Da/s



Target Mass	Found At	Delta	Width	Intensity	0.4<Width<0.6
45.00	44.99	0.00	0.51	7.20E+05	PASS
411.26	411.26	0.00	0.56	2.58E+04	PASS
585.39	585.37	-0.01	0.57	1.33E+05	PASS
933.64	933.64	0.00	0.56	3.47E+05	PASS
1223.85	1223.83	-0.01	0.56	6.20E+04	PASS

Initial Calibration:

EPA 1633

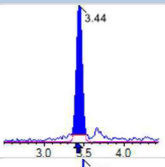
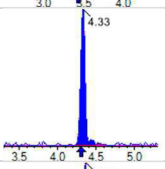
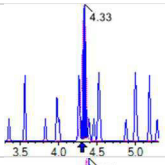
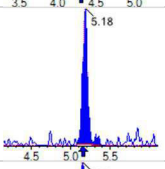
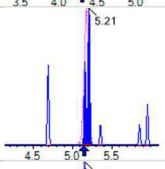
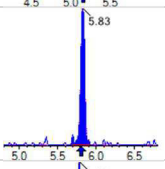
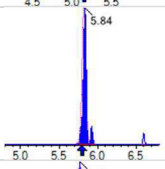
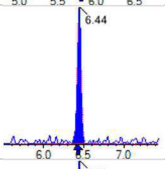
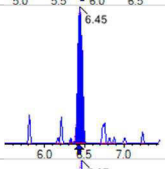
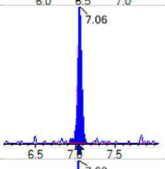
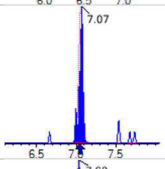
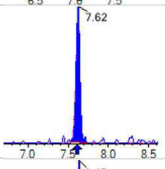
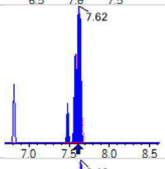
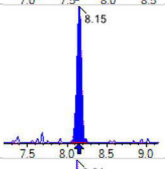
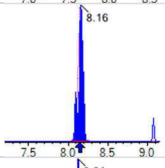
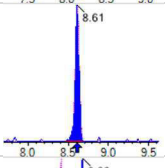
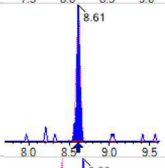
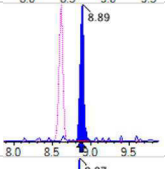
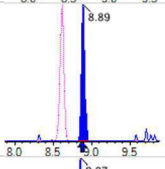
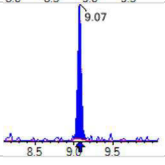
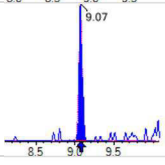
Initial Calibration: SC01366

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (1)
Acquired: 2023/04/07 - 12:38

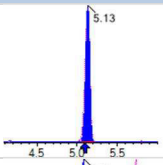
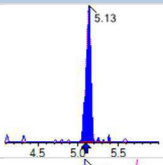
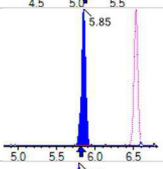
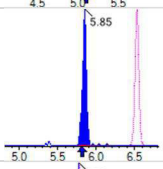
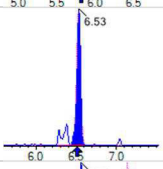
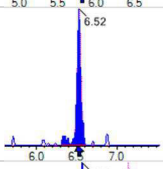
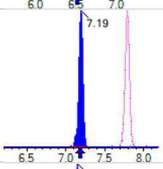
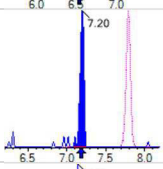
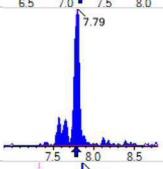
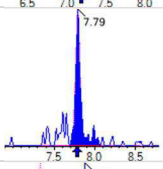
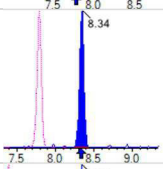
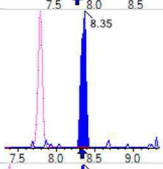
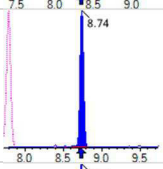
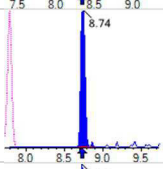
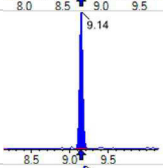
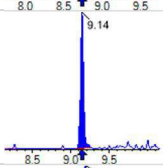
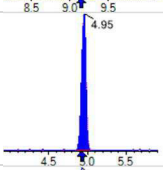
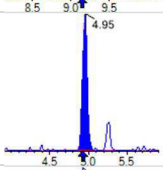
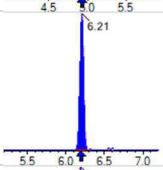
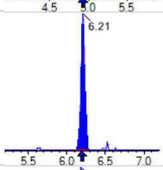
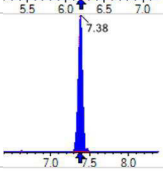
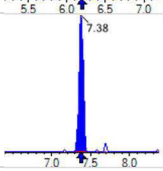
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 48492	(3.44 , 1.00) (0.00 , N/A , 0.0)	57.5	N/A 0.0 0.0	0.3981	N/A			
PFPeA	(263.0 / 219.0) 49063 (263.0 / 69.0) 503	(4.33 , 1.00) (0.00 , N/A , -0.3)	270.3 24.0	0.0103 83.3 83.3	0.2149	N/A			
PFHxA	(313.0 / 269.0) 28552 (313.0 / 119.0) 1932	(5.18 , 1.00) (0.00 , N/A , -1.5)	103.3 6859.1	0.0677 67.0 67.0	0.1128	N/A			
PFHpA	(363.0 / 319.0) 24943 (363.0 / 169.0) 8968	(5.83 , 1.00) (0.00 , N/A , -0.6)	1309.4 561.6	0.3595 121.2 121.2	0.1095	N/A			
PFOA	(413.0 / 369.0) 44024 (413.0 / 169.0) 12430	(6.44 , 1.00) (0.00 , N/A , -0.1)	144.9 37104.7	0.2823 83.9 83.9	0.1285	N/A			
PFNA	(463.0 / 419.0) 25086 (463.0 / 169.0) 4627	(7.06 , 1.00) (0.00 , N/A , -0.7)	383.9 21100.6	0.1844 82.0 82.0	0.1008	N/A			
PFDA	(513.0 / 469.0) 34128 (513.0 / 169.0) 4219	(7.62 , 1.00) (0.00 , N/A , 0.2)	159.9 133737.4	0.1236 102.7 102.7	0.0988	N/A			
PFUnA	(563.0 / 519.0) 35698 (563.0 / 169.0) 2858	(8.15 , 1.00) (0.00 , N/A , -0.7)	173.8 303.1	0.0801 77.5 77.5	0.1164	N/A			
PFDoA	(613.0 / 569.0) 24163 (613.0 / 169.0) 6290	(8.61 , 1.00) (0.00 , N/A , -0.2)	283.5 248.4	0.2603 174.2 174.2	0.0930	N/A			IR2,
PFTrDA	(663.0 / 619.0) 27778 (663.0 / 169.0) 7358	(8.89 , 1.03) (N/A , 0.01 , 0.0)	207.0 864.7	0.2649 103.3 103.3	0.1154	N/A			
PFTeDA	(713.0 / 669.0) 27262 (713.0 / 169.0) 7795	(9.07 , 1.00) (0.00 , N/A , 0.1)	135.9 85.6	0.2859 143.4 143.4	0.0993	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (1)
Acquired: 2023/04/07 - 12:38

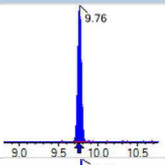
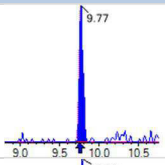
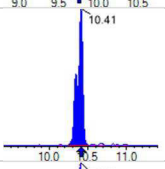
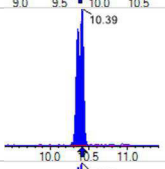
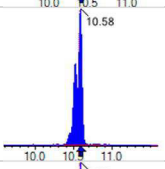
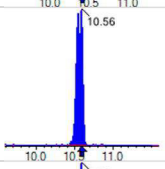
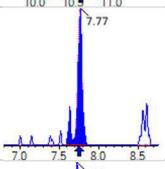
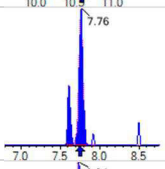
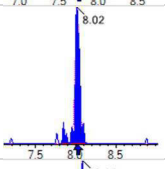
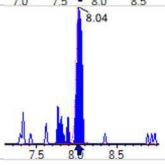
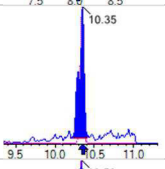
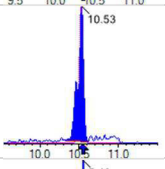
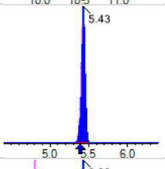
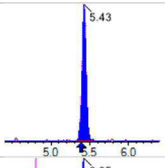
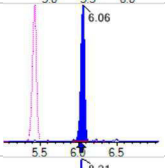
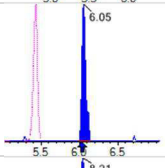
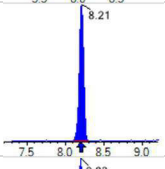
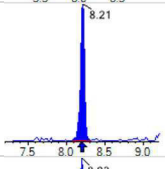
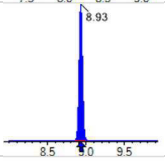
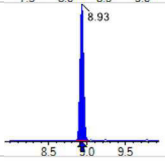
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 42306 (299.0 / 99.0) 25520	(5.13 , 1.00) (0.00 , N/A , 0.0)	193305.7 4761.9	0.6032 92.0 92.0	0.0945	N/A			
PFPeS	(349.0 / 80.0) 77406 (349.0 / 99.0) 27694	(5.85 , 0.90) (N/A , 0.03 , 0.0)	4338.7 1439135.1	0.3578 105.3 105.3	0.0990	N/A			
PFHxS	(399.0 / 80.0) 50373 (399.0 / 99.0) 28140	(6.53 , 1.00) (0.01 , N/A , 0.6)	697.1 1431.7	0.5586 156.1 156.1	0.0786	N/A			IR2,
PFHpS	(449.0 / 80.0) 78243 (449.0 / 99.0) 12286	(7.19 , 0.92) (N/A , 0.02 , -0.2)	3590975.5 4903.3	0.1570 55.8 55.8	0.1071	N/A			
PFOS	(499.0 / 80.0) 113939 (499.0 / 99.0) 17688	(7.79 , 1.00) (0.00 , N/A , 0.1)	12257.1 104.5	0.1552 71.5 71.5	0.1144	N/A			
PFNS	(549.0 / 80.0) 80330 (549.0 / 99.0) 23210	(8.34 , 1.07) (N/A , 0.01 , -0.6)	3604758.2 811.8	0.2889 113.5 113.5	0.0915	N/A			
PFDS	(599.0 / 80.0) 107319 (599.0 / 99.0) 24689	(8.74 , 1.12) (N/A , 0.01 , 0.1)	20905.9 53757.2	0.2301 96.2 96.2	0.1009	N/A			
PFDoS	(699.0 / 80.0) 84236 (699.0 / 99.0) 19893	(9.14 , 1.17) (N/A , 0.00 , 0.0)	629.5 174.1	0.2362 105.4 105.4	0.0983	N/A			
4:2FTS	(327.0 / 307.0) 65917 (327.0 / 81.0) 36472	(4.95 , 1.00) (0.00 , N/A , 0.0)	924.0 199.9	0.5533 91.7 91.7	0.4279	N/A			
6:2FTS	(427.0 / 407.0) 43161 (427.0 / 81.0) 31255	(6.21 , 1.00) (0.00 , N/A , 0.0)	108529.3 1927.0	0.7242 102.1 102.1	0.3931	N/A			
8:2FTS	(527.0 / 507.0) 57541 (527.0 / 81.0) 35681	(7.38 , 1.00) (0.00 , N/A , 0.2)	355.8 1730.1	0.6201 81.1 81.1	0.4464	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (1)
Acquired: 2023/04/07 - 12:38

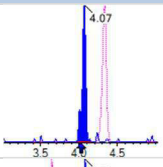
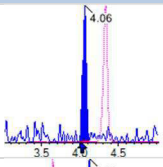
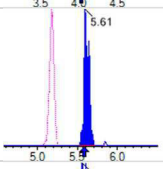
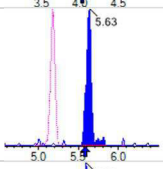
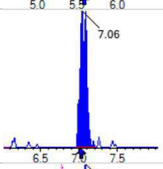
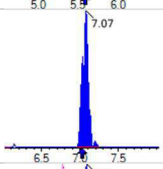
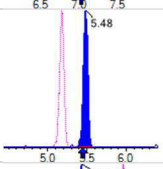
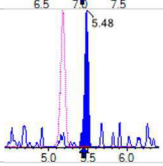
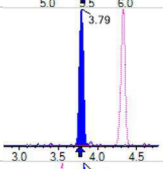
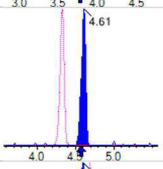
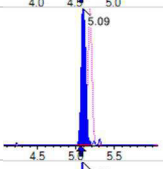
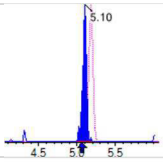
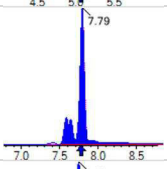
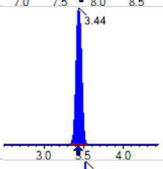
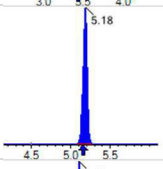
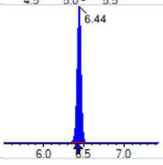
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 137323 (498.0 / 478.0) 6574	(9.76 , 1.00) (0.00 , N/A , -0.3)	706.3 92.3	0.0479 196.0 196.0	0.1117	N/A			
NMeFOSA	(512.0 / 219.0) 101871 (512.0 / 169.0) 92324	(10.41 , 1.00) (0.00 , N/A , 1.2)	856.2 666.0	0.9063 106.7 106.7	0.4226	N/A			
NEtFOSA	(526.0 / 219.0) 113691 (526.0 / 169.0) 144924	(10.58 , 1.00) (0.00 , N/A , 0.9)	890.9 1009.4	1.2747 101.2 101.2	0.4067	N/A			
NMeFOSAA	(570.0 / 419.0) 15448 (570.0 / 483.0) 6923	(7.77 , 1.00) (0.00 , N/A , 0.1)	3404.7 1520.9	0.4481 87.2 87.2	0.0994	N/A			
NEtFOSAA	(584.0 / 419.0) 14356 (584.0 / 526.0) 9416	(8.02 , 1.00) (0.00 , N/A , -1.0)	391.5 24216.7	0.6559 107.3 107.3	0.1131	N/A			
NMeFOSE	(616.0 / 59.0) 39948	(10.35 , 1.00) (0.01 , N/A , 0.0)	112.5	N/A 0.0 0.0	0.3809	N/A			
NEtFOSE	(630.0 / 59.0) 53616	(10.53 , 1.00) (0.01 , N/A , 0.0)	129.9	N/A 0.0 0.0	0.4101	N/A			
HFPO-DA	(285.0 / 169.0) 28094 (285.0 / 185.0) 75340	(5.43 , 1.00) (0.00 , N/A , 0.3)	6632.5 471.1	2.6817 91.5 91.5	0.2116	N/A			
ADONA	(377.0 / 85.0) 99737 (377.0 / 251.0) 13113	(6.06 , 1.12) (N/A , 0.02 , 0.1)	480.8 929373.6	0.1315 126.7 126.7	0.2055	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 320421 (533.0 / 353.0) 82373	(8.21 , 1.51) (N/A , 0.01 , -0.1)	791.9 183.5	0.2571 79.7 79.7	0.2226	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 214753 (633.0 / 453.0) 79632	(8.93 , 1.64) (N/A , 0.00 , 0.0)	1585.4 964.5	0.3708 108.6 108.6	0.2264	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (1)
Acquired: 2023/04/07 - 12:38

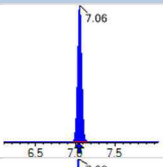
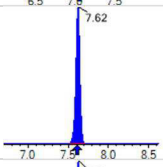
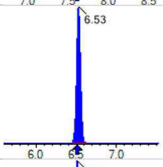
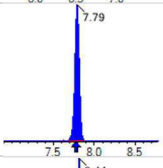
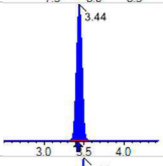
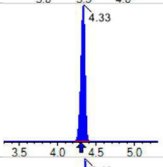
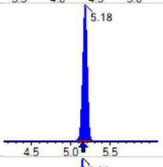
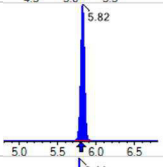
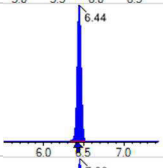
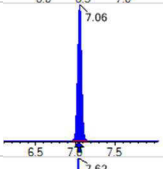
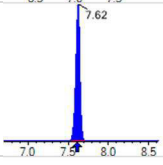
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 3938 (241.0 / 117.0) 4218	(4.07 , 0.94) (N/A , 0.05 , 0.4)	173.1 41.5	1.0711 69.6 69.6	0.4031	N/A			
5:3FTCA	(341.0 / 236.7) 16096 (341.0 / 217.0) 32581	(5.61 , 1.08) (N/A , 0.03 , -1.3)	157.6 166.6	2.0241 108.2 108.2	0.3674	N/A			
7:3FTCA	(441.0 / 317.0) 33147 (441.0 / 337.0) 28001	(7.06 , 1.36) (N/A , 0.03 , -0.8)	160.9 65705.5	0.8448 102.6 102.6	0.4155	N/A			
PFEESA	(315.0 / 135.0) 63022 (315.0 / 83.0) 11684	(5.48 , 1.06) (N/A , 0.04 , 0.0)	7412.8 43.4	0.1854 77.5 77.5	0.1896	N/A			
PFMPA	(229.0 / 85.0) 11433	(3.79 , 0.88) (N/A , 0.02 , 0.0)	367.5	N/A 0.0 0.0	0.2244	N/A			
PFMBA	(279.0 / 85.0) 30916	(4.61 , 1.06) (N/A , 0.04 , 0.0)	890.7	N/A 0.0 0.0	0.1939	N/A			
NFDHA	(295.0 / 201.0) 27118 (295.0 / 85.0) 25938	(5.09 , 0.98) (N/A , 0.03 , -0.3)	4311.7 4147.2	0.9565 97.9 97.9	0.2122	N/A			
TDCA	(499.0 / 80.0) 103109	(7.79 , 1.00) (N/A , 0.01 , 0.0)	2115.0	N/A 0.0 0.0	0.1231	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 128079	(3.44 , N/A) (N/A , 0.02 , N/A)	1543.8	N/A	1.1234 [1.0000]	112.3% { 119.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 162901	(5.18 , N/A) (N/A , 0.03 , N/A)	5038.8	N/A	1.1804 [1.0000]	118.0% { 141.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 333573	(6.44 , N/A) (N/A , 0.02 , N/A)	7129.4	N/A	1.0740 [1.0000]	107.4% { 119.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (1)
Acquired: 2023/04/07 - 12:38

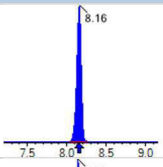
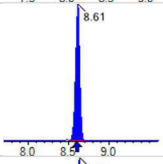
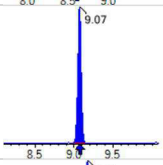
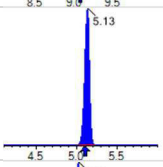
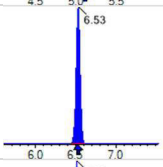
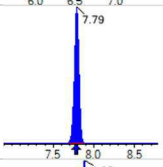
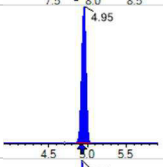
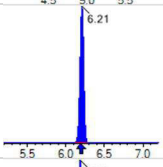
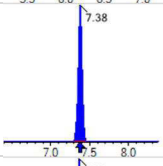
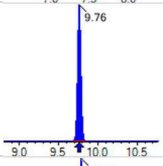
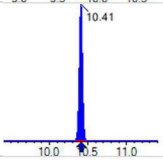
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 298303	(7.06 , N/A) (N/A , 0.01 , N/A)	7096.1	N/A	1.0119 [1.0000]	101.2% { 109.3% }			
13C2_PFDA_IIS	(515.0 / 470.1) 331052	(7.62 , N/A) (N/A , 0.01 , N/A)	3604.9	N/A	1.0679 [1.0000]	106.8% { 120.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 442410	(6.53 , N/A) (N/A , 0.02 , N/A)	48795.8	N/A	0.9863 [1.0000]	98.6% { 105.1% }			
13C4_PFOS_IIS	(503.0 / 79.9) 742256	(7.79 , N/A) (N/A , 0.01 , N/A)	2069.6	N/A	1.0666 [1.0000]	106.7% { 122.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1120803	(3.44 , N/A) (N/A , 0.02 , N/A)	4947.6	N/A	8.1596 [8.0000]	102.0% { 118.7% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 972118	(4.33 , N/A) (N/A , 0.03 , N/A)	3373.1	N/A	3.7799 [4.0000]	94.5% { 117.4% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 526125	(5.18 , N/A) (N/A , 0.03 , N/A)	4803.4	N/A	1.6881 [2.0000]	84.4% { 108.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 531240	(5.82 , N/A) (N/A , 0.03 , N/A)	2438.7	N/A	1.7021 [2.0000]	85.1% { 106.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 689699	(6.44 , N/A) (N/A , 0.01 , N/A)	3902.1	N/A	2.0086 [2.0000]	100.4% { 122.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 275336	(7.06 , N/A) (N/A , 0.02 , N/A)	9940.3	N/A	0.9475 [1.0000]	94.7% { 102.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 348931	(7.62 , N/A) (N/A , 0.01 , N/A)	3182.1	N/A	0.9649 [1.0000]	96.5% { 105.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (1)
Acquired: 2023/04/07 - 12:38

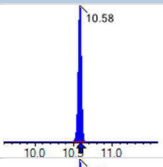
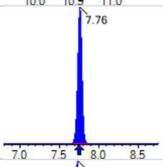
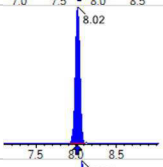
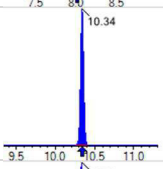
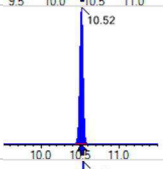
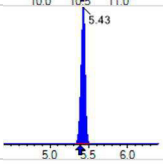
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 342278	(8.16 , N/A) (N/A , 0.01 , N/A)	7596.0	N/A	0.9818 [1.0000]	98.2% { 107.9% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 299050	(8.61 , N/A) (N/A , 0.01 , N/A)	1263.0	N/A	0.9486 [1.0000]	94.9% { 112.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 306154	(9.07 , N/A) (N/A , 0.01 , N/A)	1950.5	N/A	1.0139 [1.0000]	101.4% { 108.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1254516	(5.13 , N/A) (N/A , 0.04 , N/A)	2557.9	N/A	2.1711 [2.0000]	108.6% { 115.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 874637	(6.53 , N/A) (N/A , 0.01 , N/A)	2977.0	N/A	2.1148 [2.0000]	105.7% { 109.2% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1751602	(7.79 , N/A) (N/A , 0.01 , N/A)	3448.2	N/A	1.9384 [2.0000]	96.9% { 111.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 200824	(4.95 , N/A) (N/A , 0.03 , N/A)	1426.3	N/A	3.7967 [4.0000]	94.9% { 102.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 284836	(6.21 , N/A) (N/A , 0.02 , N/A)	3105.7	N/A	4.0566 [4.0000]	101.4% { 107.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 364194	(7.38 , N/A) (N/A , 0.02 , N/A)	3131.9	N/A	4.2135 [4.0000]	105.3% { 111.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2896712	(9.76 , N/A) (N/A , 0.01 , N/A)	4046.0	N/A	1.8946 [2.0000]	94.7% { 106.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 588242	(10.41 , N/A) (N/A , 0.00 , N/A)	2822.6	N/A	1.6964 [2.0000]	84.8% { 96.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (1)
Acquired: 2023/04/07 - 12:38

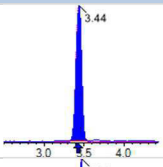
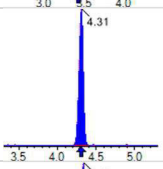
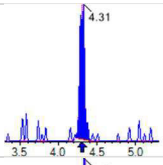
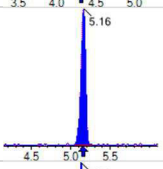
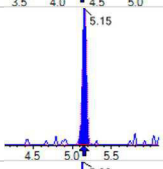
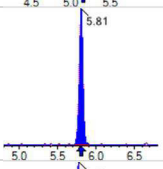
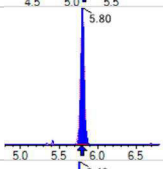
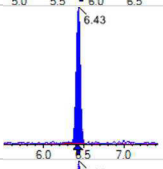
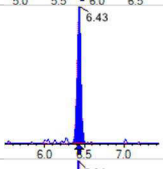
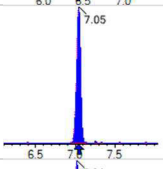
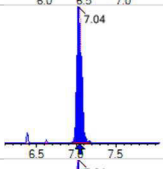
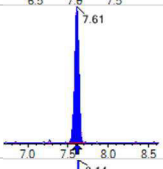
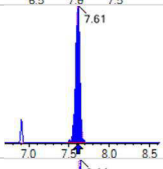
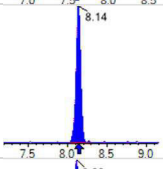
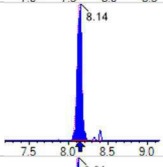
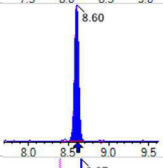
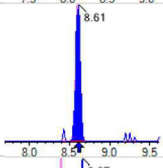
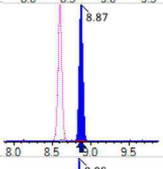
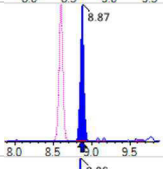
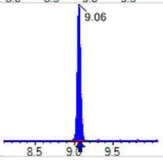
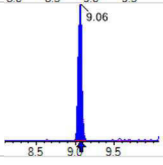
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 516085	(10.58 , N/A) (N/A , 0.00 , N/A)	2614.9	N/A	1.8177 [2.0000]	90.9% { 99.0% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 751813	(7.76 , N/A) (N/A , 0.02 , N/A)	2402.9	N/A	3.9650 [4.0000]	99.1% { 114.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 576822	(8.02 , N/A) (N/A , 0.02 , N/A)	61604.5	N/A	3.7044 [4.0000]	92.6% { 106.7% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2021692	(10.34 , N/A) (N/A , 0.00 , N/A)	1924.4	N/A	18.1469 [20.0000]	90.7% { 102.9% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2671822	(10.52 , N/A) (N/A , 0.00 , N/A)	2016.6	N/A	18.1241 [20.0000]	90.6% { 102.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1115463	(5.43 , N/A) (N/A , 0.04 , N/A)	1807.3	N/A	6.9745 [8.0000]	87.2% { 108.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (2)
Acquired: 2023/04/07 - 12:51

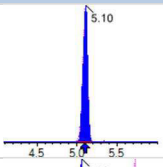
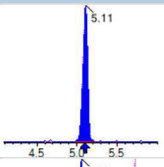
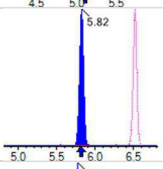
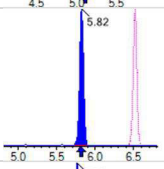
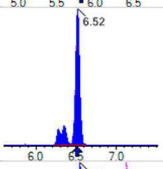
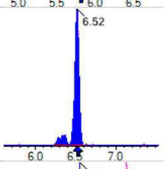
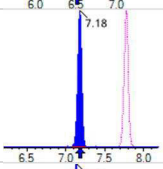
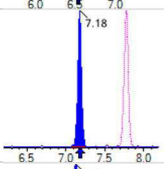
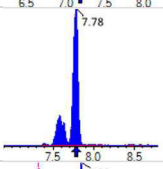
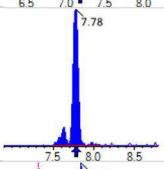
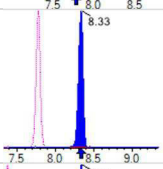
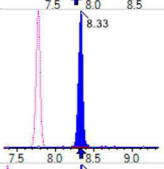
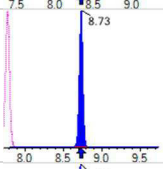
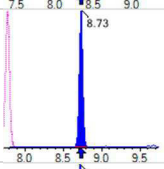
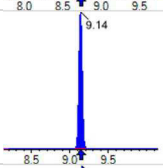
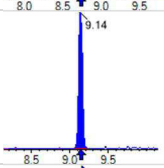
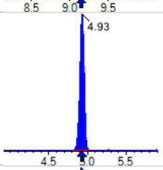
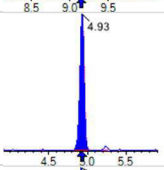
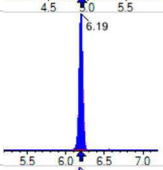
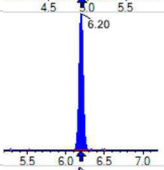
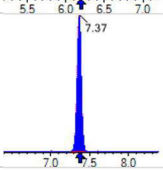
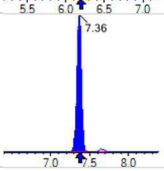
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 239052	(3.44 , 1.00) (0.00 , N/A , 0.0)	134.8	N/A 0.0 0.0	1.9687	N/A			
PFPeA	(263.0 / 219.0) 219775 (263.0 / 69.0) 3116	(4.31 , 1.00) (0.00 , N/A , 0.2)	1080.8 47.8	0.0142 115.1 115.1	1.0454	N/A			
PFHxA	(313.0 / 269.0) 140214 (313.0 / 119.0) 11154	(5.16 , 1.00) (0.00 , N/A , 0.5)	605.4 6191.9	0.0796 78.7 78.7	0.5150	N/A			
PFHpA	(363.0 / 319.0) 129024 (363.0 / 169.0) 42018	(5.81 , 1.00) (0.00 , N/A , 0.0)	19430.5 2229584.2	0.3257 109.7 109.7	0.5241	N/A			
PFOA	(413.0 / 369.0) 158895 (413.0 / 169.0) 52419	(6.43 , 1.00) (0.00 , N/A , -0.2)	452.4 12268.5	0.3299 98.0 98.0	0.4848	N/A			
PFNA	(463.0 / 419.0) 138052 (463.0 / 169.0) 28148	(7.05 , 1.00) (0.00 , N/A , 0.6)	22732.2 47149.7	0.2039 90.7 90.7	0.5159	N/A			
PFDA	(513.0 / 469.0) 181938 (513.0 / 169.0) 22856	(7.61 , 1.00) (0.00 , N/A , 0.0)	497.5 325947.2	0.1256 104.3 104.3	0.4942	N/A			
PFUnA	(563.0 / 519.0) 149629 (563.0 / 169.0) 19612	(8.14 , 1.00) (0.00 , N/A , -0.1)	662.2 45207.8	0.1311 126.9 126.9	0.4665	N/A			
PFDoA	(613.0 / 569.0) 134851 (613.0 / 169.0) 16211	(8.60 , 1.00) (0.00 , N/A , -0.2)	640.0 752.1	0.1202 80.4 80.4	0.5103	N/A			
PFTrDA	(663.0 / 619.0) 142519 (663.0 / 169.0) 37029	(8.87 , 1.03) (N/A , -0.01 , -0.1)	752.0 410.6	0.2598 101.3 101.3	0.5825	N/A			
PFTeDA	(713.0 / 669.0) 139998 (713.0 / 169.0) 29408	(9.06 , 1.00) (0.00 , N/A , -0.1)	743.8 375.5	0.2101 105.4 105.4	0.5161	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (2)
Acquired: 2023/04/07 - 12:51

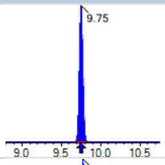
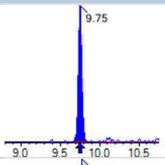
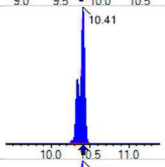
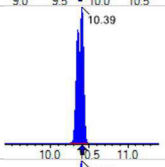
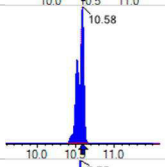
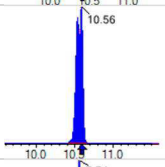
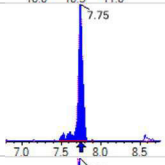
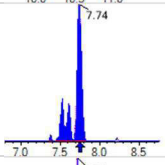
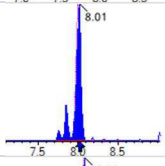
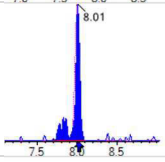
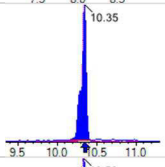
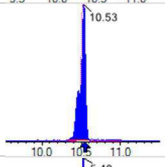
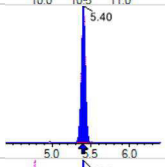
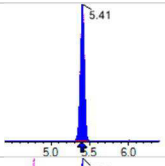
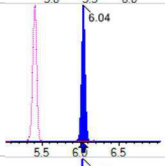
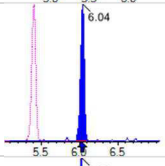
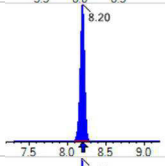
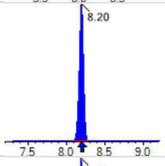
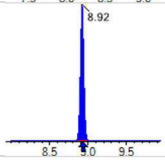
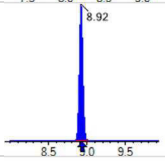
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 197989 (299.0 / 99.0) 126033	(5.10 , 1.00) (0.00 , N/A , 0.0)	305000.7 1708.2	0.6366 97.1 97.1	0.4543	N/A			
PFPeS	(349.0 / 80.0) 377971 (349.0 / 99.0) 130959	(5.82 , 0.89) (N/A , 0.01 , 0.0)	5810880.7 12833.1	0.3465 102.0 102.0	0.4906	N/A			
PFHxS	(399.0 / 80.0) 304491 (399.0 / 99.0) 101241	(6.52 , 1.00) (0.00 , N/A , 0.2)	32758.7 24174.2	0.3325 92.9 92.9	0.4822	N/A			
PFHpS	(449.0 / 80.0) 350544 (449.0 / 99.0) 99728	(7.18 , 0.92) (N/A , 0.00 , 0.1)	51158.0 1641.9	0.2845 101.2 101.2	0.4574	N/A			
PFOS	(499.0 / 80.0) 478809 (499.0 / 99.0) 102851	(7.78 , 1.00) (0.00 , N/A , 0.1)	5331.9 595.7	0.2148 99.0 99.0	0.4583	N/A			
PFNS	(549.0 / 80.0) 421485 (549.0 / 99.0) 123885	(8.33 , 1.07) (N/A , 0.00 , 0.1)	36214.6 1270.0	0.2939 115.5 115.5	0.4576	N/A			
PFDS	(599.0 / 80.0) 543924 (599.0 / 99.0) 121487	(8.73 , 1.12) (N/A , 0.00 , 0.1)	5474.8 5362.3	0.2234 93.4 93.4	0.4875	N/A			
PFDoS	(699.0 / 80.0) 423864 (699.0 / 99.0) 100373	(9.14 , 1.17) (N/A , 0.00 , 0.0)	1831.9 489.2	0.2368 105.7 105.7	0.4714	N/A			
4:2FTS	(327.0 / 307.0) 329939 (327.0 / 81.0) 194157	(4.93 , 1.00) (0.00 , N/A , 0.0)	1756.4 637.5	0.5885 97.6 97.6	1.7740	N/A			
6:2FTS	(427.0 / 407.0) 209032 (427.0 / 81.0) 153375	(6.19 , 1.00) (0.00 , N/A , -0.2)	3168.3 876.6	0.7337 103.4 103.4	1.9564	N/A			
8:2FTS	(527.0 / 507.0) 236226 (527.0 / 81.0) 163156	(7.37 , 1.00) (0.00 , N/A , 0.0)	3168.5 1493.4	0.6907 90.3 90.3	2.0432	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (2)
Acquired: 2023/04/07 - 12:51

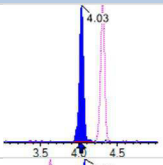
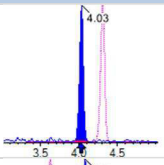
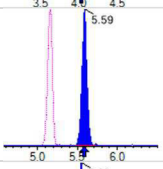
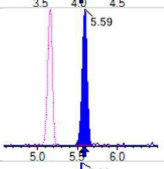
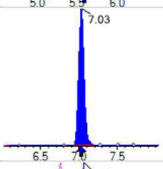
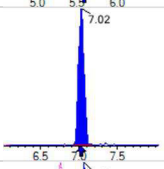
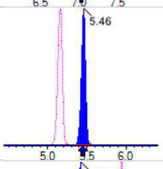
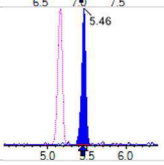
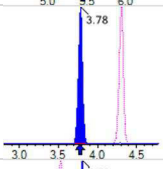
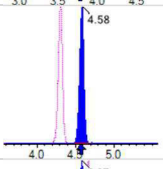
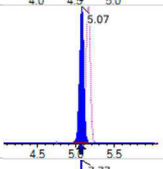
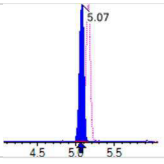
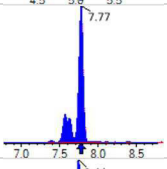
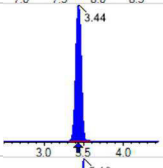
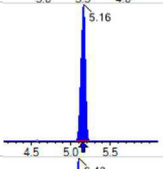
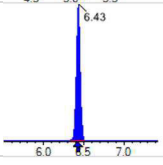
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 674300 (498.0 / 478.0) 14516	(9.75 , 1.00) (0.00 , N/A , 0.0)	1945.2 217.6	0.0215 88.1 88.1	0.5209	N/A			
NMeFOSA	(512.0 / 219.0) 562131 (512.0 / 169.0) 479468	(10.41 , 1.00) (0.00 , N/A , 1.3)	3062.1 2233.7	0.8529 100.4 100.4	2.1643	N/A			
NEtFOSA	(526.0 / 219.0) 600731 (526.0 / 169.0) 758571	(10.58 , 1.00) (-0.01 , N/A , 0.9)	3254.4 2583.7	1.2627 100.2 100.2	2.0193	N/A			
NMeFOSAA	(570.0 / 419.0) 77090 (570.0 / 483.0) 29965	(7.75 , 1.00) (0.00 , N/A , 0.2)	9492.2 37853.6	0.3887 75.6 75.6	0.4944	N/A			
NEtFOSAA	(584.0 / 419.0) 59148 (584.0 / 526.0) 42371	(8.01 , 1.00) (0.01 , N/A , 0.1)	7673.9 1096.7	0.7164 117.2 117.2	0.4474	N/A			
NMeFOSE	(616.0 / 59.0) 229007	(10.35 , 1.00) (0.01 , N/A , 0.0)	613.3	N/A 0.0 0.0	1.9889	N/A			
NEtFOSE	(630.0 / 59.0) 282165	(10.53 , 1.00) (0.01 , N/A , 0.0)	483.0	N/A 0.0 0.0	1.9853	N/A			
HFPO-DA	(285.0 / 169.0) 137872 (285.0 / 185.0) 363744	(5.40 , 1.00) (0.00 , N/A , 0.0)	15013.7 1269.5	2.6383 90.0 90.0	1.0261	N/A			
ADONA	(377.0 / 85.0) 472592 (377.0 / 251.0) 46750	(6.04 , 1.12) (N/A , 0.01 , -0.2)	2591.0 861.6	0.0989 95.3 95.3	0.9621	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 1444728 (533.0 / 353.0) 414598	(8.20 , 1.52) (N/A , 0.00 , 0.0)	1983.8 1225.1	0.2870 88.9 88.9	0.9921	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 966039 (633.0 / 453.0) 334909	(8.92 , 1.65) (N/A , 0.00 , 0.0)	3872.4 1827.8	0.3467 101.6 101.6	1.0067	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (2)
Acquired: 2023/04/07 - 12:51

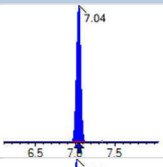
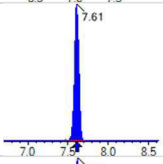
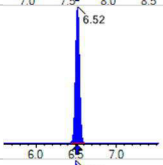
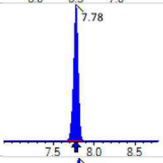
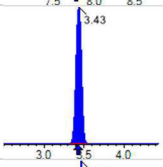
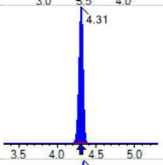
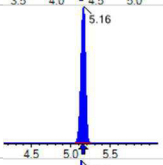
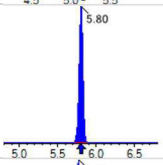
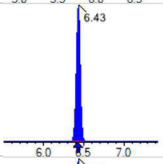
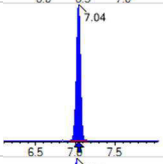
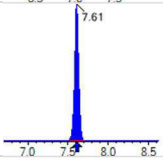
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 19099 (241.0 / 117.0) 27577	(4.03 , 0.94) (N/A , 0.01 , 0.0)	429.4 234.3	1.4439 93.8 93.8	2.1237	N/A			
5:3FTCA	(341.0 / 236.7) 103285 (341.0 / 217.0) 158823	(5.59 , 1.08) (N/A , 0.01 , -0.2)	2510.7 388.6	1.5377 82.2 82.2	2.1923	N/A			
7:3FTCA	(441.0 / 317.0) 167096 (441.0 / 337.0) 138736	(7.03 , 1.36) (N/A , 0.00 , 0.2)	826.4 580.3	0.8303 100.8 100.8	1.9476	N/A			
PFEESA	(315.0 / 135.0) 297292 (315.0 / 83.0) 72449	(5.46 , 1.06) (N/A , 0.01 , -0.2)	2131016.1 303.6	0.2437 101.9 101.9	0.8319	N/A			
PFMPA	(229.0 / 85.0) 47943	(3.78 , 0.88) (N/A , 0.01 , 0.0)	1489.3	N/A 0.0 0.0	1.0220	N/A			
PFMBA	(279.0 / 85.0) 161723	(4.58 , 1.06) (N/A , 0.01 , 0.0)	1934.6	N/A 0.0 0.0	1.1016	N/A			
NFDHA	(295.0 / 201.0) 129268 (295.0 / 85.0) 144114	(5.07 , 0.98) (N/A , 0.01 , 0.0)	1890.0 1046.2	1.1148 114.2 114.2	0.9408	N/A			
TDCA	(499.0 / 80.0) 448375	(7.77 , 1.00) (N/A , 0.00 , 0.0)	6886.1	N/A 0.0 0.0	0.5105	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 125631	(3.44 , N/A) (N/A , 0.01 , N/A)	1788.5	N/A	1.1020 [1.0000]	110.2% { 117.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 141707	(5.16 , N/A) (N/A , 0.01 , N/A)	763.9	N/A	1.0268 [1.0000]	102.7% { 123.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 316434	(6.43 , N/A) (N/A , 0.01 , N/A)	8901.1	N/A	1.0188 [1.0000]	101.9% { 113.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (2)
Acquired: 2023/04/07 - 12:51

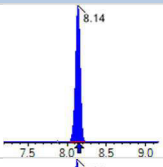
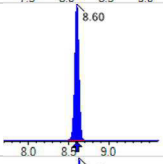
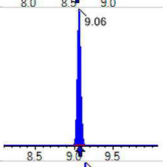
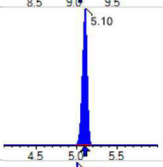
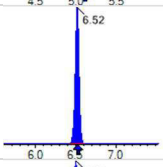
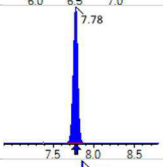
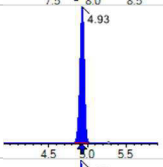
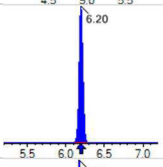
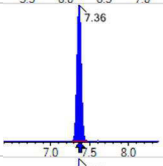
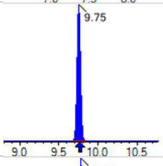
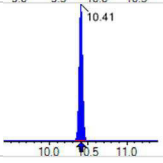
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 289884	(7.04 , N/A) (N/A , 0.00 , N/A)	3586.9	N/A	0.9833 [1.0000]	98.3% { 106.2% }			
13C2_PFDA_IIS	(515.0 / 470.1) 317926	(7.61 , N/A) (N/A , 0.00 , N/A)	3354.8	N/A	1.0256 [1.0000]	102.6% { 116.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 435163	(6.52 , N/A) (N/A , 0.00 , N/A)	5402.9	N/A	0.9701 [1.0000]	97.0% { 103.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 739673	(7.78 , N/A) (N/A , 0.00 , N/A)	2051.5	N/A	1.0629 [1.0000]	106.3% { 122.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1117377	(3.43 , N/A) (N/A , 0.01 , N/A)	5293.5	N/A	8.2932 [8.0000]	103.7% { 118.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 894991	(4.31 , N/A) (N/A , 0.01 , N/A)	3458.6	N/A	4.0004 [4.0000]	100.0% { 108.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 565796	(5.16 , N/A) (N/A , 0.01 , N/A)	2880.1	N/A	2.0869 [2.0000]	104.3% { 116.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 573946	(5.80 , N/A) (N/A , 0.01 , N/A)	2372.5	N/A	2.1140 [2.0000]	105.7% { 115.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 659958	(6.43 , N/A) (N/A , 0.00 , N/A)	3923.3	N/A	2.0260 [2.0000]	101.3% { 117.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 296114	(7.04 , N/A) (N/A , 0.00 , N/A)	4823.1	N/A	1.0486 [1.0000]	104.9% { 109.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 371711	(7.61 , N/A) (N/A , 0.00 , N/A)	8160.8	N/A	1.0704 [1.0000]	107.0% { 112.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (2)
Acquired: 2023/04/07 - 12:51

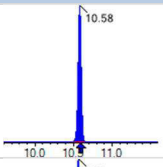
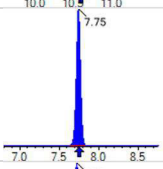
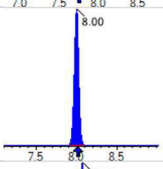
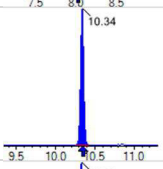
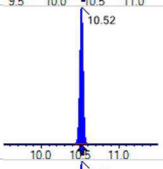
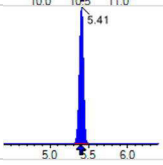
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 358009	(8.14 , N/A) (N/A , -0.01 , N/A)	3930.6	N/A	1.0694 [1.0000]	106.9% { 112.8% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 304093	(8.60 , N/A) (N/A , 0.00 , N/A)	2050.6	N/A	1.0044 [1.0000]	100.4% { 114.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 302498	(9.06 , N/A) (N/A , -0.01 , N/A)	1461.0	N/A	1.0432 [1.0000]	104.3% { 107.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1220575	(5.10 , N/A) (N/A , 0.01 , N/A)	3215.8	N/A	2.1476 [2.0000]	107.4% { 112.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 861863	(6.52 , N/A) (N/A , 0.00 , N/A)	7088.7	N/A	2.1186 [2.0000]	105.9% { 107.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1837197	(7.78 , N/A) (N/A , 0.00 , N/A)	2913.0	N/A	2.0402 [2.0000]	102.0% { 116.4% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 242446	(4.93 , N/A) (N/A , 0.01 , N/A)	1507.4	N/A	4.6599 [4.0000]	116.5% { 123.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 277157	(6.20 , N/A) (N/A , 0.01 , N/A)	2968.3	N/A	4.0130 [4.0000]	100.3% { 104.5% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 326686	(7.36 , N/A) (N/A , 0.00 , N/A)	1603.8	N/A	3.8425 [4.0000]	96.1% { 99.8% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3048619	(9.75 , N/A) (N/A , 0.00 , N/A)	2803.3	N/A	2.0010 [2.0000]	100.0% { 111.8% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 633808	(10.41 , N/A) (N/A , 0.00 , N/A)	2797.2	N/A	1.8341 [2.0000]	91.7% { 104.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (2)
Acquired: 2023/04/07 - 12:51

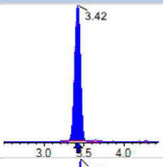
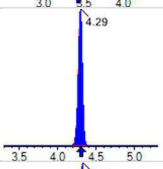
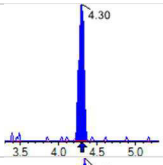
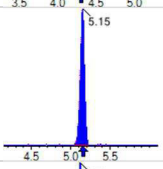
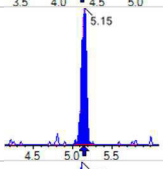
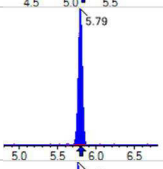
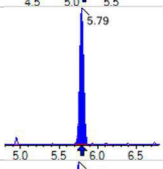
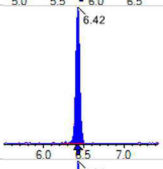
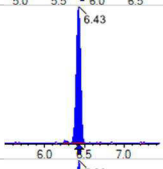
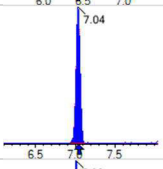
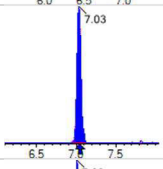
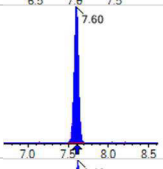
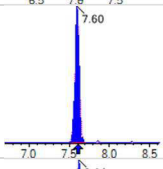
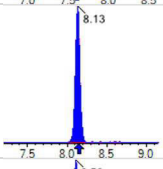
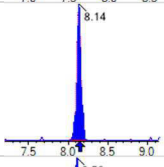
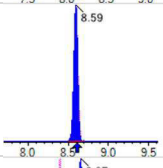
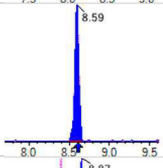
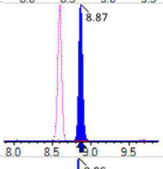
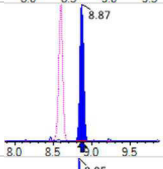
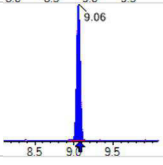
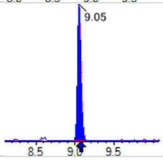
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 549222	(10.58 , N/A) (N/A , 0.00 , N/A)	2665.6	N/A	1.9412 [2.0000]	97.1% { 105.4% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 754679	(7.75 , N/A) (N/A , 0.00 , N/A)	2632.2	N/A	3.9940 [4.0000]	99.9% { 115.1% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 600763	(8.00 , N/A) (N/A , 0.00 , N/A)	4873.3	N/A	3.8716 [4.0000]	96.8% { 111.2% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2219383	(10.34 , N/A) (N/A , 0.00 , N/A)	1655.0	N/A	19.9909 [20.0000]	100.0% { 113.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2904511	(10.52 , N/A) (N/A , 0.00 , N/A)	1597.9	N/A	19.7714 [20.0000]	98.9% { 111.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1128658	(5.41 , N/A) (N/A , 0.01 , N/A)	3598.1	N/A	8.1124 [8.0000]	101.4% { 109.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (3)
Acquired: 2023/04/07 - 13:04

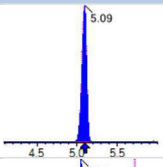
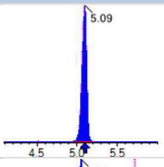
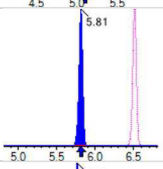
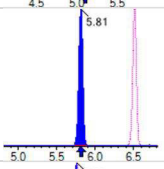
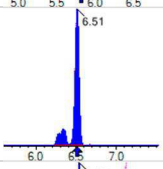
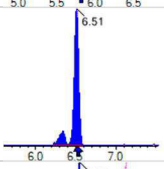
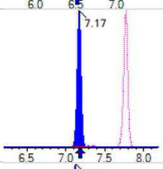
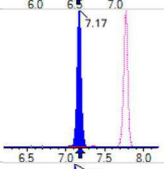
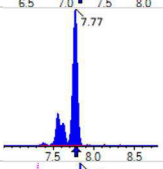
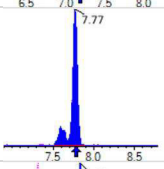
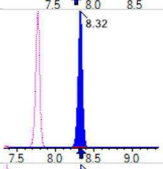
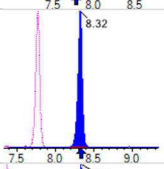
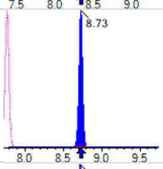
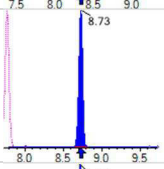
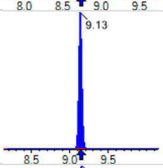
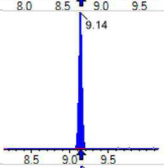
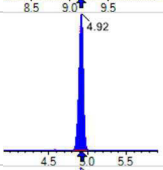
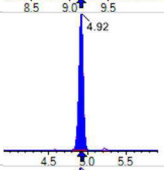
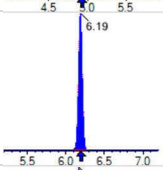
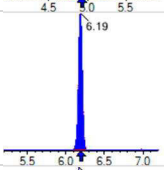
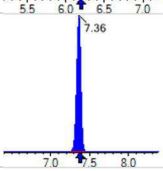
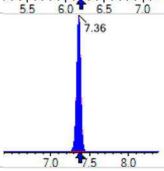
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 457112	(3.42 , 1.00) (0.00 , N/A , 0.0)	164.2	N/A 0.0 0.0	3.8401	N/A			
PFPeA	(263.0 / 219.0) 417041 (263.0 / 69.0) 6122	(4.29 , 1.00) (0.00 , N/A , -0.2)	1692.5 215.2	0.0147 119.2 119.2	1.9520	N/A			
PFHxA	(313.0 / 269.0) 257117 (313.0 / 119.0) 24045	(5.15 , 1.00) (0.00 , N/A , -0.2)	1386.6 5914.0	0.0935 92.6 92.6	0.9400	N/A			
PFHpA	(363.0 / 319.0) 199442 (363.0 / 169.0) 69421	(5.79 , 1.00) (0.00 , N/A , 0.1)	1847.4 4133.9	0.3481 117.3 117.3	0.8566	N/A			
PFOA	(413.0 / 369.0) 300612 (413.0 / 169.0) 97777	(6.42 , 1.00) (0.00 , N/A , -0.1)	861.2 25619.2	0.3253 96.7 96.7	0.8730	N/A			
PFNA	(463.0 / 419.0) 251120 (463.0 / 169.0) 56073	(7.04 , 1.00) (0.00 , N/A , 0.1)	41423.4 2462.3	0.2233 99.3 99.3	0.8801	N/A			
PFDA	(513.0 / 469.0) 350187 (513.0 / 169.0) 33302	(7.60 , 1.00) (0.00 , N/A , 0.2)	872.9 10347.1	0.0951 79.0 79.0	1.0305	N/A			
PFUnA	(563.0 / 519.0) 282561 (563.0 / 169.0) 39163	(8.13 , 1.00) (0.00 , N/A , -0.3)	774.9 810.6	0.1386 134.2 134.2	0.8799	N/A			
PFDoA	(613.0 / 569.0) 277833 (613.0 / 169.0) 39884	(8.59 , 1.00) (0.00 , N/A , 0.1)	1701.6 820.2	0.1436 96.1 96.1	0.9772	N/A			
PFTrDA	(663.0 / 619.0) 223140 (663.0 / 169.0) 63368	(8.87 , 1.03) (N/A , -0.01 , -0.1)	947.6 941.9	0.2840 110.8 110.8	0.8476	N/A			
PFTeDA	(713.0 / 669.0) 249437 (713.0 / 169.0) 51503	(9.06 , 1.00) (0.00 , N/A , 0.3)	1003.9 613.6	0.2065 103.6 103.6	0.9930	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (3)
Acquired: 2023/04/07 - 13:04

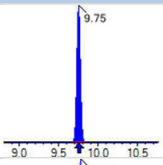
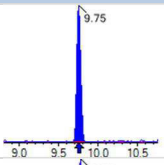
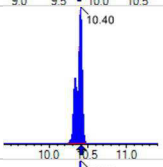
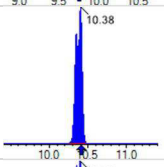
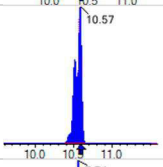
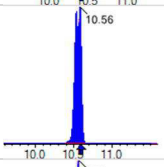
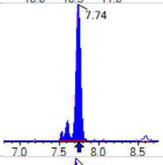
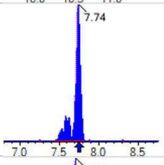
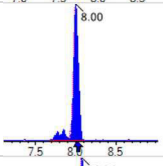
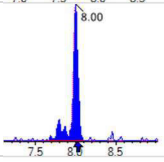
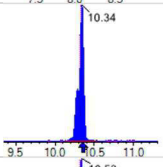
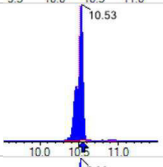
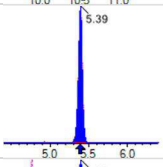
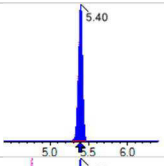
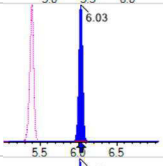
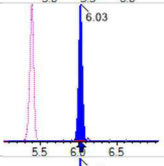
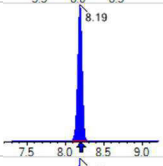
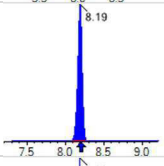
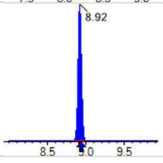
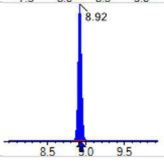
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 382428 (299.0 / 99.0) 250065	(5.09 , 1.00) (0.00 , N/A , -0.1)	9893.9 458974.0	0.6539 99.7 99.7	0.8401	N/A			
PFPeS	(349.0 / 80.0) 704055 (349.0 / 99.0) 236955	(5.81 , 0.89) (N/A , 0.00 , 0.0)	11926.6 56003.0	0.3366 99.0 99.0	0.8943	N/A			
PFHxS	(399.0 / 80.0) 591990 (399.0 / 99.0) 213444	(6.51 , 1.00) (0.00 , N/A , 0.2)	1135.0 2014.2	0.3606 100.7 100.7	0.9174	N/A			
PFHpS	(449.0 / 80.0) 692644 (449.0 / 99.0) 167447	(7.17 , 0.92) (N/A , -0.01 , 0.0)	6572.2 425865.4	0.2418 86.0 86.0	0.9342	N/A			
PFOS	(499.0 / 80.0) 896848 (499.0 / 99.0) 202286	(7.77 , 1.00) (0.00 , N/A , 0.0)	6389.4 1704.1	0.2256 103.9 103.9	0.8872	N/A			
PFNS	(549.0 / 80.0) 842067 (549.0 / 99.0) 197635	(8.32 , 1.07) (N/A , -0.01 , 0.1)	3413.7 7795.5	0.2347 92.2 92.2	0.9450	N/A			
PFDS	(599.0 / 80.0) 1012211 (599.0 / 99.0) 242757	(8.73 , 1.12) (N/A , -0.01 , 0.0)	9828.2 3038.3	0.2398 100.3 100.3	0.9378	N/A			
PFDoS	(699.0 / 80.0) 799431 (699.0 / 99.0) 198334	(9.13 , 1.18) (N/A , -0.01 , -0.1)	3715.2 953.8	0.2481 110.8 110.8	0.9191	N/A			
4:2FTS	(327.0 / 307.0) 614358 (327.0 / 81.0) 388473	(4.92 , 1.00) (0.00 , N/A , 0.1)	2480.2 1400.7	0.6323 104.8 104.8	3.7563	N/A			
6:2FTS	(427.0 / 407.0) 432111 (427.0 / 81.0) 318277	(6.19 , 1.00) (0.00 , N/A , 0.1)	1960.0 8393.0	0.7366 103.8 103.8	4.1568	N/A			
8:2FTS	(527.0 / 507.0) 460126 (527.0 / 81.0) 359187	(7.36 , 1.00) (0.00 , N/A , 0.1)	2213.7 1899.6	0.7806 102.1 102.1	3.8229	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (3)
Acquired: 2023/04/07 - 13:04

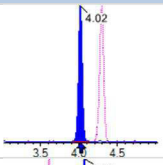
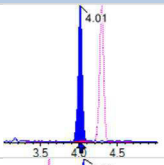
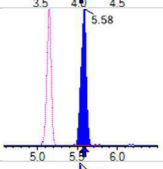
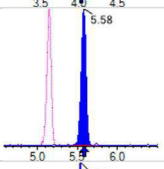
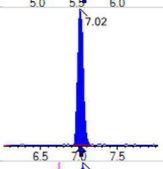
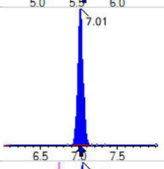
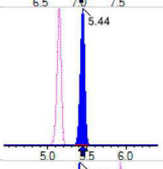
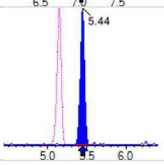
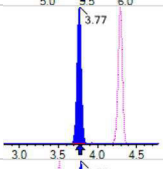
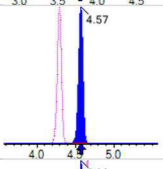
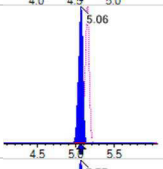
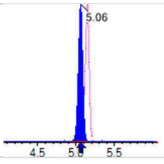
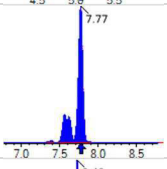
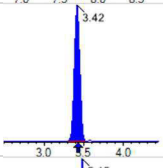
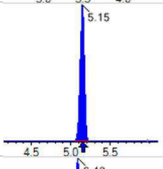
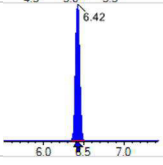
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 1271930 (498.0 / 478.0) 31585	(9.75 , 1.00) (0.00 , N/A , 0.0)	2915.5 390.2	0.0248 101.7 101.7	0.9743	N/A			
NMeFOSA	(512.0 / 219.0) 1100210 (512.0 / 169.0) 953688	(10.40 , 1.00) (0.00 , N/A , 1.2)	3765.5 3406.9	0.8668 102.1 102.1	4.2310	N/A			
NEtFOSA	(526.0 / 219.0) 1186400 (526.0 / 169.0) 1494444	(10.57 , 1.00) (-0.01 , N/A , 0.9)	4914.7 3628.7	1.2596 100.0 100.0	3.9272	N/A			
NMeFOSAA	(570.0 / 419.0) 152213 (570.0 / 483.0) 73022	(7.74 , 1.00) (0.01 , N/A , 0.0)	3047.0 398.3	0.4797 93.3 93.3	0.9912	N/A			
NEtFOSAA	(584.0 / 419.0) 126462 (584.0 / 526.0) 74065	(8.00 , 1.00) (0.01 , N/A , 0.2)	19083.3 430.9	0.5857 95.8 95.8	0.9846	N/A			
NMeFOSE	(616.0 / 59.0) 447485	(10.34 , 1.00) (0.01 , N/A , 0.0)	854.9	N/A 0.0 0.0	3.9303	N/A			
NEtFOSE	(630.0 / 59.0) 546102	(10.53 , 1.00) (0.01 , N/A , 0.0)	730.2	N/A 0.0 0.0	3.8353	N/A			
HFPO-DA	(285.0 / 169.0) 275264 (285.0 / 185.0) 669168	(5.39 , 1.00) (0.00 , N/A , -0.2)	2974.9 2015.2	2.4310 82.9 82.9	2.0545	N/A			
ADONA	(377.0 / 85.0) 947076 (377.0 / 251.0) 90472	(6.03 , 1.12) (N/A , 0.00 , 0.2)	2854.6 2870.2	0.0955 92.1 92.1	1.9336	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 2717519 (533.0 / 353.0) 868746	(8.19 , 1.52) (N/A , -0.01 , -0.1)	3338.8 2091.0	0.3197 99.1 99.1	1.8715	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 1836733 (633.0 / 453.0) 640223	(8.92 , 1.65) (N/A , -0.01 , 0.0)	3859.3 1482.1	0.3486 102.1 102.1	1.9196	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (3)
Acquired: 2023/04/07 - 13:04

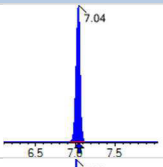
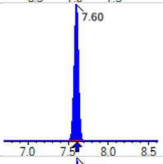
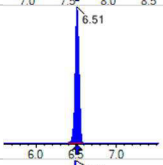
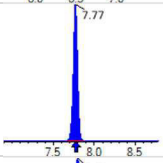
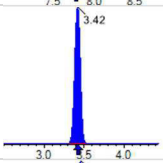
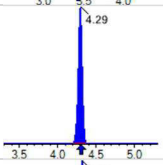
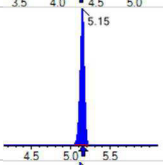
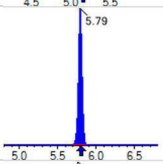
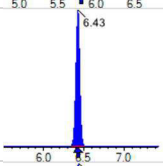
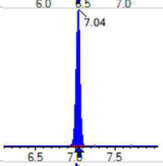
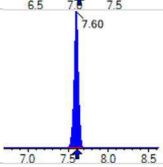
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 34428 (241.0 / 117.0) 54252	(4.02 , 0.94) (N/A , 0.00 , 0.2)	682.5 388.0	1.5758 102.4 102.4	3.7670	N/A			
5:3FTCA	(341.0 / 236.7) 167500 (341.0 / 217.0) 307785	(5.58 , 1.08) (N/A , 0.00 , 0.1)	790.5 583.2	1.8375 98.2 98.2	3.5392	N/A			
7:3FTCA	(441.0 / 317.0) 307210 (441.0 / 337.0) 255900	(7.02 , 1.36) (N/A , -0.01 , 0.1)	648.8 873.5	0.8330 101.2 101.2	3.5644	N/A			
PFEESA	(315.0 / 135.0) 590847 (315.0 / 83.0) 139860	(5.44 , 1.06) (N/A , 0.00 , 0.1)	3541.8 522.6	0.2367 99.0 99.0	1.6457	N/A			
PFMPA	(229.0 / 85.0) 92506	(3.77 , 0.88) (N/A , -0.01 , 0.0)	2161.7	N/A 0.0 0.0	1.9404	N/A			
PFMBA	(279.0 / 85.0) 281425	(4.57 , 1.06) (N/A , 0.00 , 0.0)	2991.3	N/A 0.0 0.0	1.8863	N/A			
NFDHA	(295.0 / 201.0) 287243 (295.0 / 85.0) 275023	(5.06 , 0.98) (N/A , 0.00 , 0.3)	2893.8 1208.8	0.9575 98.0 98.0	2.0811	N/A			
TDCA	(499.0 / 80.0) 823476	(7.77 , 1.00) (N/A , -0.01 , 0.0)	12235.3	N/A 0.0 0.0	0.9692	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 127762	(3.42 , N/A) (N/A , -0.01 , N/A)	1625.4	N/A	1.1207 [1.0000]	112.1% { 119.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 157083	(5.15 , N/A) (N/A , -0.01 , N/A)	9326.6	N/A	1.1383 [1.0000]	113.8% { 136.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 308346	(6.42 , N/A) (N/A , 0.00 , N/A)	2403.8	N/A	0.9927 [1.0000]	99.3% { 110.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (3)
Acquired: 2023/04/07 - 13:04

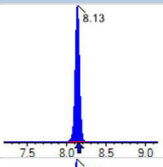
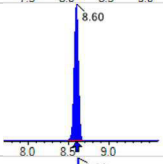
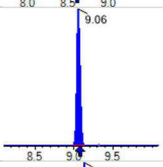
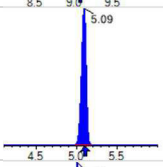
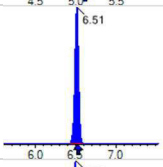
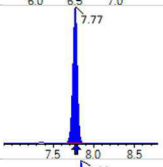
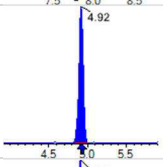
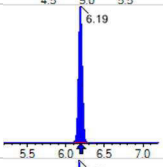
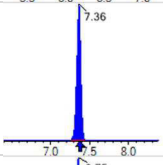
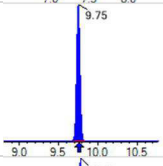
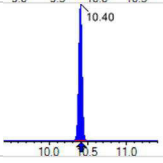
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 300811	(7.04 , N/A) (N/A , 0.00 , N/A)	527.5	N/A	1.0204 [1.0000]	102.0% { 110.2% }			
13C2_PFDA_IIS	(515.0 / 470.1) 333760	(7.60 , N/A) (N/A , -0.01 , N/A)	30474.0	N/A	1.0767 [1.0000]	107.7% { 121.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 454780	(6.51 , N/A) (N/A , 0.00 , N/A)	15126.3	N/A	1.0138 [1.0000]	101.4% { 108.1% }			
13C4_PFOS_IIS	(503.0 / 79.9) 766887	(7.77 , N/A) (N/A , -0.01 , N/A)	2174.1	N/A	1.1020 [1.0000]	110.2% { 126.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1095366	(3.42 , N/A) (N/A , 0.00 , N/A)	4613.6	N/A	7.9942 [8.0000]	99.9% { 116.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 909552	(4.29 , N/A) (N/A , 0.00 , N/A)	3326.5	N/A	3.6676 [4.0000]	91.7% { 109.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 568378	(5.15 , N/A) (N/A , 0.00 , N/A)	2920.9	N/A	1.8912 [2.0000]	94.6% { 116.7% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 542798	(5.79 , N/A) (N/A , 0.00 , N/A)	5301.4	N/A	1.8035 [2.0000]	90.2% { 108.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 693421	(6.43 , N/A) (N/A , 0.00 , N/A)	10489.7	N/A	2.1846 [2.0000]	109.2% { 123.4% }			
13C9_PFNA_EIS	(472.0 / 427.0) 315749	(7.04 , N/A) (N/A , 0.00 , N/A)	1751.5	N/A	1.0775 [1.0000]	107.7% { 116.9% }			
13C6_PFDA_EIS	(519.0 / 474.0) 343139	(7.60 , N/A) (N/A , -0.01 , N/A)	536.6	N/A	0.9412 [1.0000]	94.1% { 103.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (3)
Acquired: 2023/04/07 - 13:04

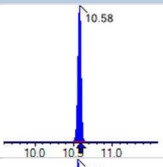
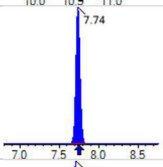
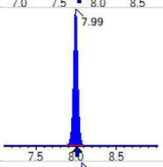
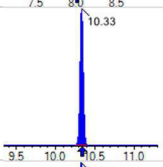
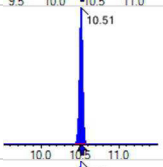
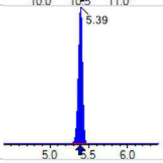
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 358414	(8.13 , N/A) (N/A , -0.01 , N/A)	1972.4	N/A	1.0198 [1.0000]	102.0% { 112.9% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 327184	(8.60 , N/A) (N/A , -0.01 , N/A)	1925.6	N/A	1.0294 [1.0000]	102.9% { 122.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 280133	(9.06 , N/A) (N/A , -0.01 , N/A)	1332.7	N/A	0.9202 [1.0000]	92.0% { 99.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1275054	(5.09 , N/A) (N/A , 0.00 , N/A)	3321.6	N/A	2.1466 [2.0000]	107.3% { 117.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 880731	(6.51 , N/A) (N/A , 0.00 , N/A)	3030.4	N/A	2.0716 [2.0000]	103.6% { 110.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1777446	(7.77 , N/A) (N/A , -0.01 , N/A)	1997.2	N/A	1.9038 [2.0000]	95.2% { 112.6% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 213210	(4.92 , N/A) (N/A , 0.00 , N/A)	983.0	N/A	3.9212 [4.0000]	98.0% { 108.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 269651	(6.19 , N/A) (N/A , 0.00 , N/A)	11263.8	N/A	3.7359 [4.0000]	93.4% { 101.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 340098	(7.36 , N/A) (N/A , 0.00 , N/A)	2093.1	N/A	3.8277 [4.0000]	95.7% { 103.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3074488	(9.75 , N/A) (N/A , -0.01 , N/A)	3332.7	N/A	1.9463 [2.0000]	97.3% { 112.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 634567	(10.40 , N/A) (N/A , -0.01 , N/A)	2581.8	N/A	1.7712 [2.0000]	88.6% { 104.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (3)
Acquired: 2023/04/07 - 13:04

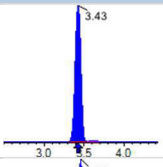
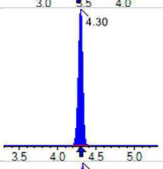
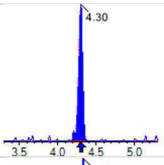
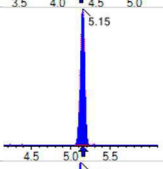
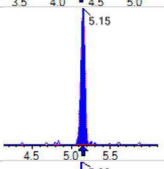
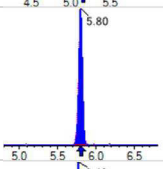
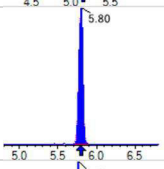
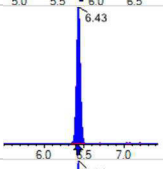
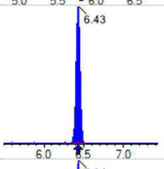
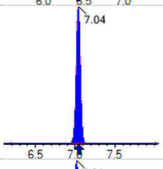
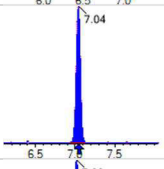
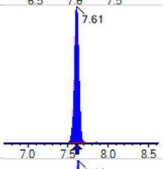
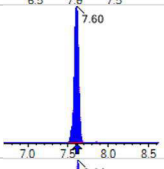
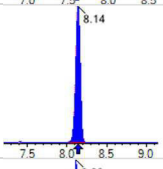
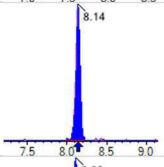
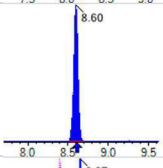
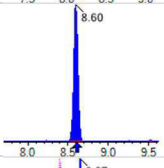
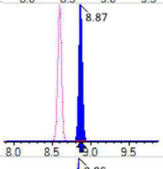
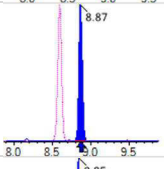
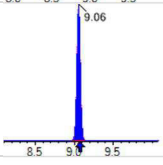
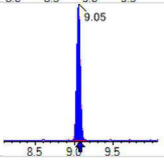
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 557721	(10.58 , N/A) (N/A , -0.01 , N/A)	2722.7	N/A	1.9013 [2.0000]	95.1% { 107.0% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 743232	(7.74 , N/A) (N/A , -0.01 , N/A)	2102.5	N/A	3.7939 [4.0000]	94.8% { 113.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 583686	(7.99 , N/A) (N/A , -0.01 , N/A)	5631.9	N/A	3.6281 [4.0000]	90.7% { 108.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2194567	(10.33 , N/A) (N/A , -0.01 , N/A)	2172.3	N/A	19.0659 [20.0000]	95.3% { 111.7% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2909809	(10.51 , N/A) (N/A , -0.01 , N/A)	2275.6	N/A	19.1045 [20.0000]	95.5% { 111.9% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1125440	(5.39 , N/A) (N/A , 0.00 , N/A)	2933.7	N/A	7.2975 [8.0000]	91.2% { 109.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (4)
Acquired: 2023/04/07 - 13:16

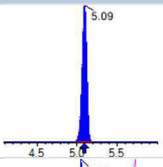
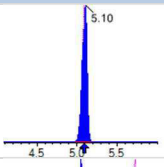
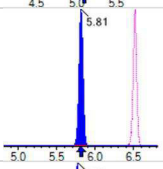
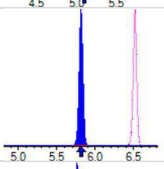
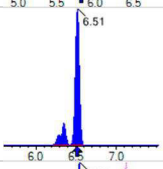
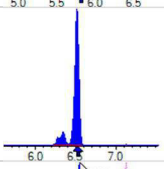
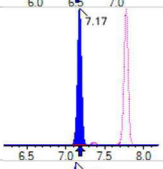
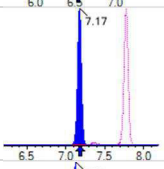
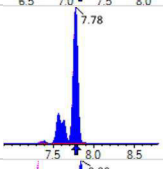
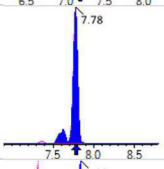
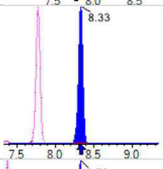
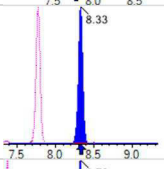
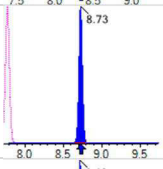
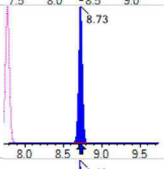
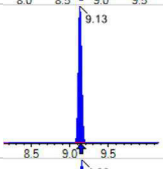
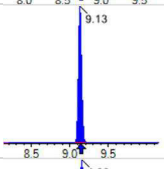
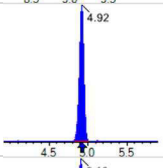
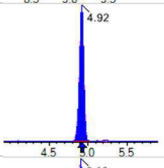
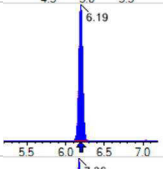
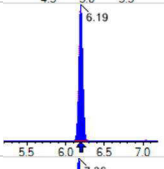
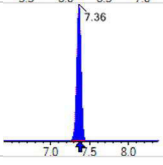
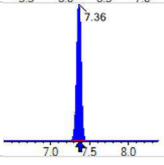
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 910942	(3.43 , 1.00) (0.00 , N/A , 0.0)	158.4	N/A 0.0 0.0	8.2357	N/A			
PFPeA	(263.0 / 219.0) 805306 (263.0 / 69.0) 10942	(4.30 , 1.00) (0.00 , N/A , -0.1)	2879.8 224.7	0.0136 110.3 110.3	3.9460	N/A			
PFHxA	(313.0 / 269.0) 515778 (313.0 / 119.0) 54790	(5.15 , 1.00) (0.00 , N/A , 0.1)	2257.3 1763709.4	0.1062 105.1 105.1	1.9931	N/A			
PFHpA	(363.0 / 319.0) 496936 (363.0 / 169.0) 152496	(5.80 , 1.00) (0.00 , N/A , 0.0)	4300.9 21062.9	0.3069 103.4 103.4	2.0632	N/A			
PFOA	(413.0 / 369.0) 645595 (413.0 / 169.0) 216452	(6.43 , 1.00) (0.00 , N/A , 0.0)	1353.3 568413.7	0.3353 99.6 99.6	2.0147	N/A			
PFNA	(463.0 / 419.0) 591439 (463.0 / 169.0) 130684	(7.04 , 1.00) (0.00 , N/A , 0.0)	14660.3 5633102.9	0.2210 98.3 98.3	2.1732	N/A			
PFDA	(513.0 / 469.0) 690041 (513.0 / 169.0) 75288	(7.61 , 1.00) (0.00 , N/A , 0.1)	1507.4 214.0	0.1091 90.6 90.6	2.0302	N/A			
PFUnA	(563.0 / 519.0) 636580 (563.0 / 169.0) 77564	(8.14 , 1.00) (0.00 , N/A , -0.1)	1523.5 823.0	0.1218 118.0 118.0	2.1053	N/A			
PFDoA	(613.0 / 569.0) 543486 (613.0 / 169.0) 97132	(8.60 , 1.00) (0.00 , N/A , 0.0)	1866.4 6312.6	0.1787 119.6 119.6	2.0251	N/A			
PFTrDA	(663.0 / 619.0) 521699 (663.0 / 169.0) 130260	(8.87 , 1.03) (N/A , -0.01 , 0.0)	1941.4 1004.0	0.2497 97.4 97.4	2.0996	N/A			
PFTeDA	(713.0 / 669.0) 533897 (713.0 / 169.0) 115867	(9.06 , 1.00) (0.00 , N/A , 0.1)	1929.7 831.4	0.2170 108.9 108.9	2.1248	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (4)
Acquired: 2023/04/07 - 13:16

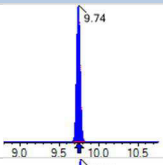
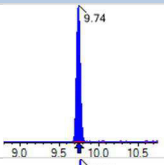
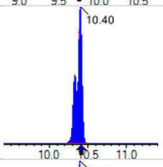
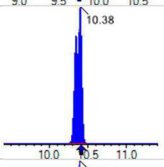
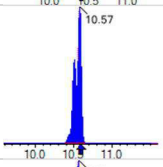
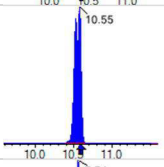
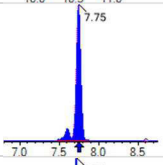
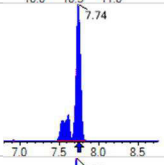
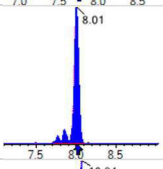
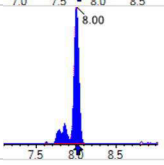
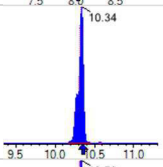
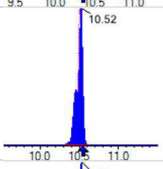
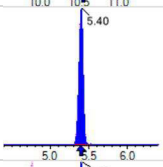
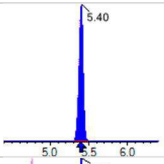
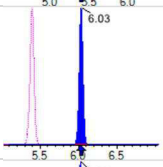
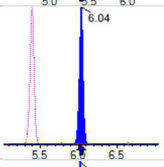
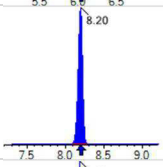
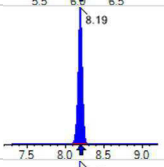
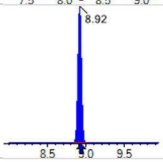
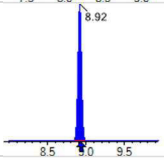
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 784265 (299.0 / 99.0) 486683	(5.09 , 1.00) (0.00 , N/A , -0.2)	1970.8 12274.1	0.6206 94.6 94.6	1.7274	N/A			
PFPeS	(349.0 / 80.0) 1493935 (349.0 / 99.0) 567471	(5.81 , 0.89) (N/A , 0.00 , 0.0)	1403231.4 22643.4	0.3798 111.8 111.8	1.9608	N/A			
PFHxS	(399.0 / 80.0) 1164011 (399.0 / 99.0) 448652	(6.51 , 1.00) (0.00 , N/A , 0.0)	1682.8 1536.7	0.3854 107.7 107.7	1.8639	N/A			
PFHpS	(449.0 / 80.0) 1412454 (449.0 / 99.0) 398935	(7.17 , 0.92) (N/A , 0.00 , 0.0)	5263.0 2323.0	0.2824 100.5 100.5	1.9920	N/A			
PFOS	(499.0 / 80.0) 1809371 (499.0 / 99.0) 416984	(7.78 , 1.00) (0.00 , N/A , 0.0)	10029.1 1912.0	0.2305 106.2 106.2	1.8717	N/A			
PFNS	(549.0 / 80.0) 1753305 (549.0 / 99.0) 441977	(8.33 , 1.07) (N/A , 0.00 , 0.1)	20428.0 4587.5	0.2521 99.0 99.0	2.0574	N/A			
PFDS	(599.0 / 80.0) 2277746 (599.0 / 99.0) 529640	(8.73 , 1.12) (N/A , -0.01 , 0.1)	6179.7 6623.7	0.2325 97.2 97.2	2.2066	N/A			
PFDoS	(699.0 / 80.0) 1699709 (699.0 / 99.0) 393434	(9.13 , 1.17) (N/A , -0.01 , 0.0)	2852.2 1925.2	0.2315 103.4 103.4	2.0433	N/A			
4:2FTS	(327.0 / 307.0) 1240436 (327.0 / 81.0) 780961	(4.92 , 1.00) (0.00 , N/A , 0.0)	4130.2 1838.0	0.6296 104.4 104.4	7.5241	N/A			
6:2FTS	(427.0 / 407.0) 925666 (427.0 / 81.0) 658870	(6.19 , 1.00) (0.00 , N/A , 0.0)	5110.1 2224.2	0.7118 100.3 100.3	8.0442	N/A			
8:2FTS	(527.0 / 507.0) 1022051 (527.0 / 81.0) 716755	(7.36 , 1.00) (0.00 , N/A , 0.0)	71391.8 5545.4	0.7013 91.7 91.7	8.0548	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (4)
Acquired: 2023/04/07 - 13:16

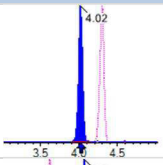
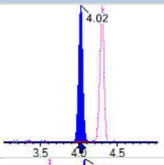
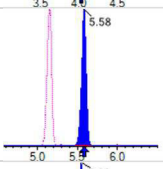
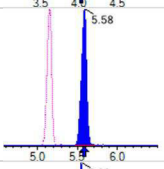
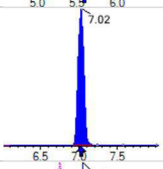
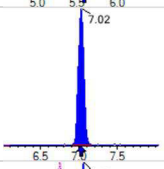
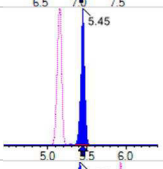
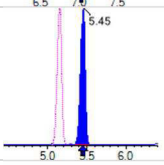
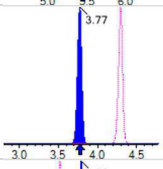
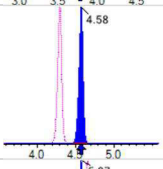
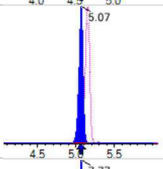
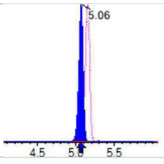
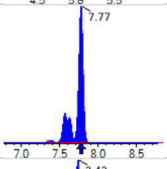
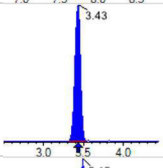
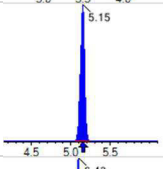
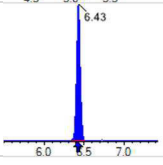
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 2677114 (498.0 / 478.0) 67017	(9.74 , 1.00) (0.00 , N/A , -0.1)	4764.8 693.0	0.0250 102.5 102.5	2.0900	N/A			
NMeFOSA	(512.0 / 219.0) 2295942 (512.0 / 169.0) 1970683	(10.40 , 1.00) (0.00 , N/A , 1.2)	4660.9 5600.5	0.8583 101.1 101.1	8.5568	N/A			
NEtFOSA	(526.0 / 219.0) 2508492 (526.0 / 169.0) 3099432	(10.57 , 1.00) (-0.01 , N/A , 0.9)	5203.9 5618.6	1.2356 98.1 98.1	8.2699	N/A			
NMeFOSAA	(570.0 / 419.0) 332783 (570.0 / 483.0) 141618	(7.75 , 1.00) (0.00 , N/A , 0.2)	48987.8 343.2	0.4256 82.8 82.8	2.1310	N/A			
NEtFOSAA	(584.0 / 419.0) 268165 (584.0 / 526.0) 163469	(8.01 , 1.00) (0.01 , N/A , 0.1)	19580.1 3522.2	0.6096 99.7 99.7	2.1097	N/A			
NMeFOSE	(616.0 / 59.0) 953908	(10.34 , 1.00) (0.01 , N/A , 0.0)	1294.5	N/A 0.0 0.0	8.0886	N/A			
NEtFOSE	(630.0 / 59.0) 1175188	(10.52 , 1.00) (0.01 , N/A , 0.0)	1007.1	N/A 0.0 0.0	8.2981	N/A			
HFPO-DA	(285.0 / 169.0) 543928 (285.0 / 185.0) 1452564	(5.40 , 1.00) (0.00 , N/A , -0.1)	4336.2 3697.6	2.6705 91.1 91.1	4.0866	N/A			
ADONA	(377.0 / 85.0) 1912046 (377.0 / 251.0) 188440	(6.03 , 1.12) (N/A , 0.00 , -0.2)	3225.4 1251.2	0.0986 95.0 95.0	3.9295	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 5873365 (533.0 / 353.0) 1792900	(8.20 , 1.52) (N/A , 0.00 , 0.2)	3757.3 2268.0	0.3053 94.6 94.6	4.0715	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 3746224 (633.0 / 453.0) 1298440	(8.92 , 1.65) (N/A , -0.01 , 0.0)	5444.7 2814.7	0.3466 101.5 101.5	3.9410	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (4)
Acquired: 2023/04/07 - 13:16

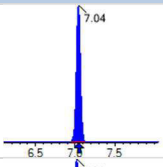
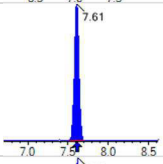
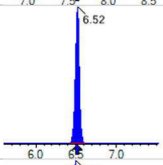
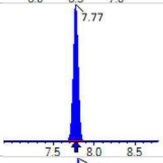
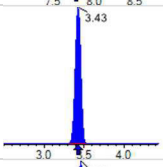
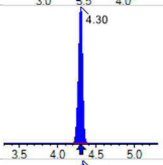
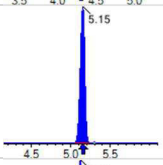
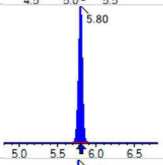
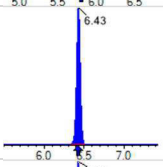
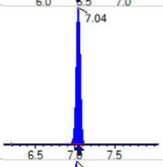
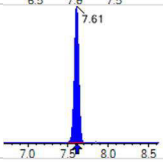
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 68407 (241.0 / 117.0) 106733	(4.02 , 0.94) (N/A , 0.00 , -0.1)	1303.4 797.5	1.5603 101.4 101.4	7.8358	N/A			
5:3FTCA	(341.0 / 236.7) 373531 (341.0 / 217.0) 615384	(5.58 , 1.08) (N/A , 0.00 , -0.1)	1528.1 1236.3	1.6475 88.1 88.1	8.3422	N/A			
7:3FTCA	(441.0 / 317.0) 650684 (441.0 / 337.0) 570518	(7.02 , 1.36) (N/A , 0.00 , -0.1)	825.5 845.5	0.8768 106.5 106.5	7.9796	N/A			
PFEESA	(315.0 / 135.0) 1471039 (315.0 / 83.0) 293478	(5.45 , 1.06) (N/A , 0.00 , -0.1)	3366.0 924.9	0.1995 83.4 83.4	4.3308	N/A			
PFMPA	(229.0 / 85.0) 189721	(3.77 , 0.88) (N/A , 0.00 , 0.0)	2482.2	N/A 0.0 0.0	4.1662	N/A			
PFMBA	(279.0 / 85.0) 599622	(4.58 , 1.06) (N/A , 0.00 , 0.0)	4547.3	N/A 0.0 0.0	4.2074	N/A			
NFDHA	(295.0 / 201.0) 554069 (295.0 / 85.0) 545507	(5.07 , 0.98) (N/A , 0.00 , 0.0)	2954.1 2106.0	0.9845 100.8 100.8	4.2429	N/A			
TDCA	(499.0 / 80.0) 1660427	(7.77 , 1.00) (N/A , 0.00 , 0.0)	19869.1	N/A 0.0 0.0	2.0434	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 130727	(3.43 , N/A) (N/A , 0.00 , N/A)	1521.9	N/A	1.1467 [1.0000]	114.7% { 122.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 150406	(5.15 , N/A) (N/A , 0.00 , N/A)	162723.3	N/A	1.0899 [1.0000]	109.0% { 130.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 338518	(6.43 , N/A) (N/A , 0.00 , N/A)	290373.0	N/A	1.0899 [1.0000]	109.0% { 121.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (4)
Acquired: 2023/04/07 - 13:16

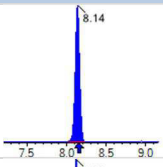
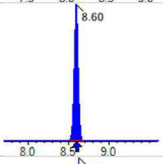
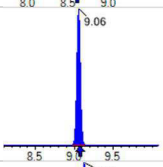
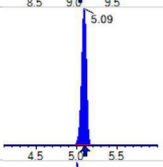
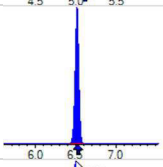
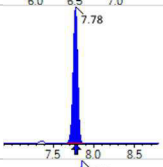
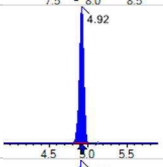
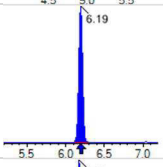
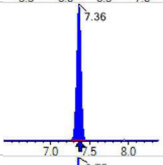
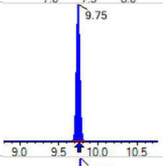
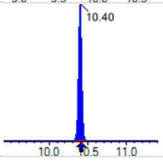
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 312130	(7.04 , N/A) (N/A , 0.00 , N/A)	2540412.3	N/A	1.0588 [1.0000]	105.9% { 114.4% }			
13C2_PFDA_IIS	(515.0 / 470.1) 340237	(7.61 , N/A) (N/A , 0.00 , N/A)	1348.8	N/A	1.0975 [1.0000]	109.8% { 124.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 471743	(6.52 , N/A) (N/A , 0.00 , N/A)	3570.1	N/A	1.0517 [1.0000]	105.2% { 112.1% }			
13C4_PFOS_IIS	(503.0 / 79.9) 717973	(7.77 , N/A) (N/A , 0.00 , N/A)	1995.6	N/A	1.0317 [1.0000]	103.2% { 118.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1017820	(3.43 , N/A) (N/A , 0.00 , N/A)	4265.9	N/A	7.2598 [8.0000]	90.7% { 107.8% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 868822	(4.30 , N/A) (N/A , 0.00 , N/A)	3182.1	N/A	3.6589 [4.0000]	91.5% { 104.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 537749	(5.15 , N/A) (N/A , 0.00 , N/A)	1384.6	N/A	1.8687 [2.0000]	93.4% { 110.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 561532	(5.80 , N/A) (N/A , 0.00 , N/A)	2961.9	N/A	1.9486 [2.0000]	97.4% { 112.5% }			
13C8_PFOA_EIS	(421.0 / 376.0) 645252	(6.43 , N/A) (N/A , 0.00 , N/A)	3541.5	N/A	1.8517 [2.0000]	92.6% { 114.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 301176	(7.04 , N/A) (N/A , 0.00 , N/A)	1461.8	N/A	0.9905 [1.0000]	99.0% { 111.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 343193	(7.61 , N/A) (N/A , 0.00 , N/A)	22766.2	N/A	0.9235 [1.0000]	92.3% { 103.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (4)
Acquired: 2023/04/07 - 13:16

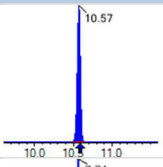
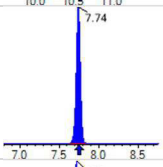
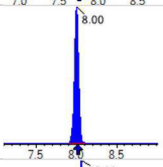
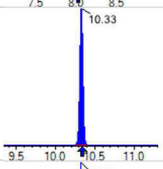
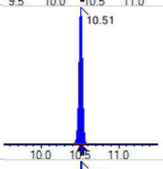
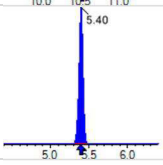
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 337485	(8.14 , N/A) (N/A , -0.01 , N/A)	1850.9	N/A	0.9420 [1.0000]	94.2% { 106.3% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 308832	(8.60 , N/A) (N/A , -0.01 , N/A)	1236.7	N/A	0.9532 [1.0000]	95.3% { 115.8% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 280221	(9.06 , N/A) (N/A , -0.01 , N/A)	2028.9	N/A	0.9030 [1.0000]	90.3% { 99.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1271624	(5.09 , N/A) (N/A , 0.00 , N/A)	2970.1	N/A	2.0639 [2.0000]	103.2% { 117.4% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 852373	(6.52 , N/A) (N/A , 0.00 , N/A)	2615.7	N/A	1.9328 [2.0000]	96.6% { 106.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1699832	(7.78 , N/A) (N/A , 0.00 , N/A)	2189.5	N/A	1.9447 [2.0000]	97.2% { 107.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 214912	(4.92 , N/A) (N/A , 0.00 , N/A)	1092.9	N/A	3.8104 [4.0000]	95.3% { 109.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 298494	(6.19 , N/A) (N/A , 0.00 , N/A)	9384.0	N/A	3.9868 [4.0000]	99.7% { 112.6% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 358544	(7.36 , N/A) (N/A , 0.00 , N/A)	1958.4	N/A	3.8902 [4.0000]	97.3% { 109.5% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3016795	(9.75 , N/A) (N/A , -0.01 , N/A)	3122.5	N/A	2.0399 [2.0000]	102.0% { 110.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 654775	(10.40 , N/A) (N/A , -0.01 , N/A)	3090.2	N/A	1.9521 [2.0000]	97.6% { 107.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (4)
Acquired: 2023/04/07 - 13:16

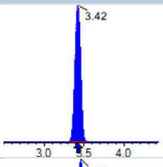
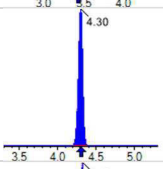
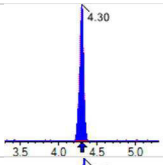
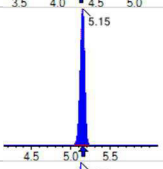
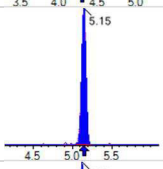
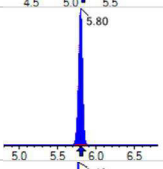
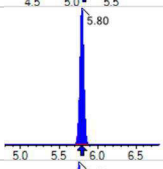
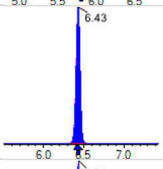
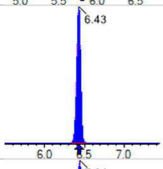
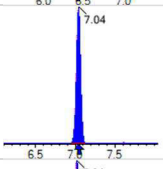
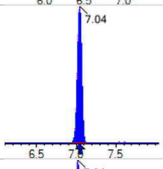
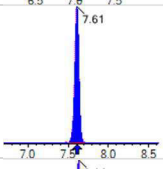
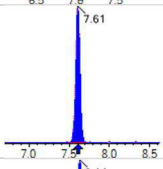
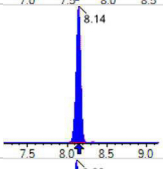
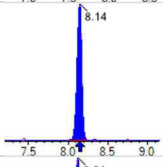
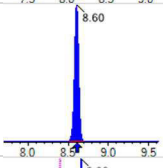
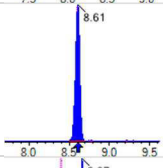
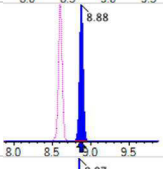
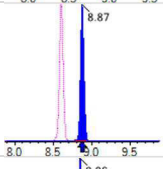
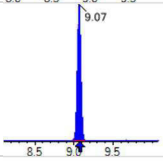
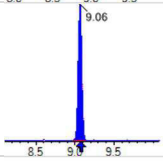
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 559999	(10.57 , N/A) (N/A , -0.01 , N/A)	3088.0	N/A	2.0391 [2.0000]	102.0% { 107.5% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 755760	(7.74 , N/A) (N/A , 0.00 , N/A)	2926.8	N/A	4.1206 [4.0000]	103.0% { 115.3% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 577632	(8.00 , N/A) (N/A , 0.00 , N/A)	11323.0	N/A	3.8351 [4.0000]	95.9% { 106.9% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2273179	(10.33 , N/A) (N/A , -0.01 , N/A)	2185.8	N/A	21.0943 [20.0000]	105.5% { 115.7% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2894164	(10.51 , N/A) (N/A , -0.01 , N/A)	1491.1	N/A	20.2964 [20.0000]	101.5% { 111.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1118070	(5.40 , N/A) (N/A , 0.00 , N/A)	2085.2	N/A	7.5715 [8.0000]	94.6% { 108.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (5)
Acquired: 2023/04/07 - 13:29

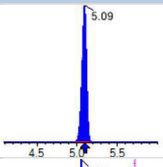
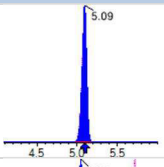
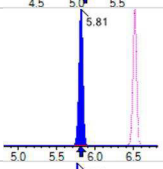
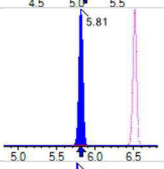
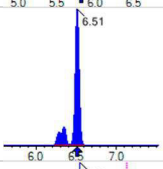
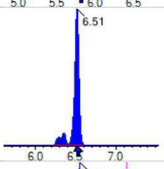
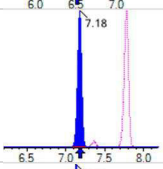
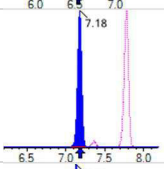
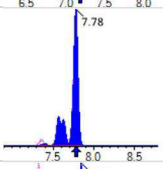
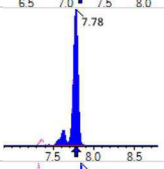
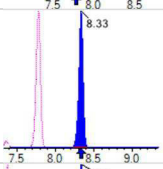
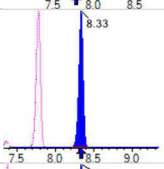
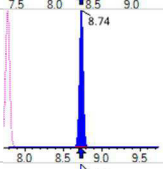
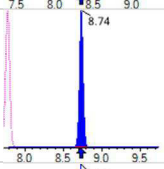
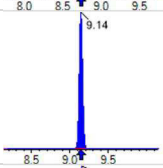
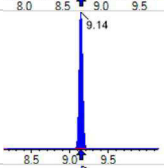
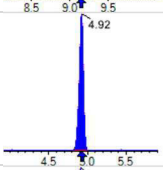
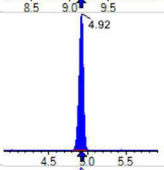
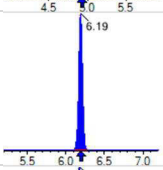
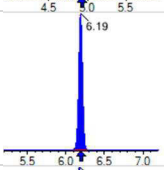
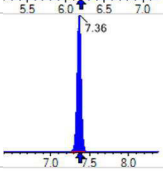
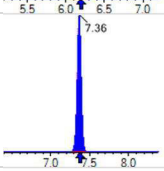
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2108476	(3.42 , 1.00) (0.00 , N/A , 0.0)	169.3	N/A 0.0 0.0	20.5454	N/A			
PFPeA	(263.0 / 219.0) 1954211 (263.0 / 69.0) 24072	(4.30 , 1.00) (0.00 , N/A , -0.2)	5799.9 988.0	0.0123 100.0 100.0	10.0454	N/A			
PFHxA	(313.0 / 269.0) 1176104 (313.0 / 119.0) 118820	(5.15 , 1.00) (0.00 , N/A , 0.1)	3730.8 5665.9	0.1010 100.0 100.0	5.0192	N/A			
PFHpA	(363.0 / 319.0) 1085284 (363.0 / 169.0) 322037	(5.80 , 1.00) (0.00 , N/A , 0.1)	7473.1 57396.9	0.2967 100.0 100.0	5.0697	N/A			
PFOA	(413.0 / 369.0) 1437905 (413.0 / 169.0) 483894	(6.43 , 1.00) (0.00 , N/A , 0.0)	2225.8 726976.5	0.3365 100.0 100.0	5.1542	N/A			
PFNA	(463.0 / 419.0) 1229530 (463.0 / 169.0) 276482	(7.04 , 1.00) (0.00 , N/A , -0.1)	7200.2 1080.4	0.2249 100.0 100.0	5.0382	N/A			
PFDA	(513.0 / 469.0) 1589892 (513.0 / 169.0) 191475	(7.61 , 1.00) (0.00 , N/A , 0.0)	2898.4 871.0	0.1204 100.0 100.0	4.8531	N/A			
PFUnA	(563.0 / 519.0) 1445990 (563.0 / 169.0) 149299	(8.14 , 1.00) (0.00 , N/A , 0.0)	3276.6 1030.2	0.1033 100.0 100.0	5.0857	N/A			
PFDoA	(613.0 / 569.0) 1255493 (613.0 / 169.0) 187637	(8.60 , 1.00) (0.00 , N/A , -0.1)	3208.2 877.6	0.1495 100.0 100.0	5.4161	N/A			
PFTrDA	(663.0 / 619.0) 1105045 (663.0 / 169.0) 283290	(8.88 , 1.03) (N/A , 0.00 , 0.2)	3491.8 1225.5	0.2564 100.0 100.0	5.1488	N/A			
PFTeDA	(713.0 / 669.0) 1248534 (713.0 / 169.0) 248884	(9.07 , 1.00) (0.00 , N/A , 0.1)	2642.6 937.6	0.1993 100.0 100.0	4.9444	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (5)
Acquired: 2023/04/07 - 13:29

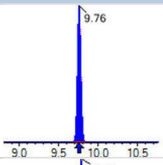
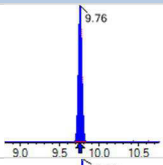
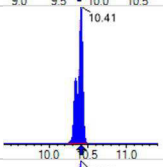
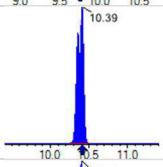
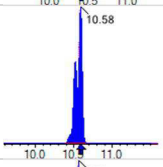
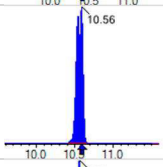
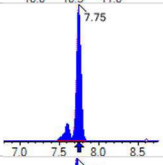
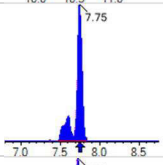
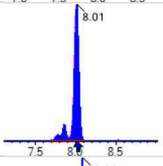
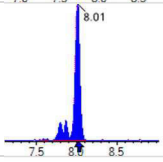
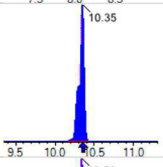
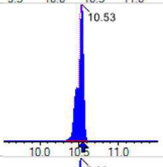
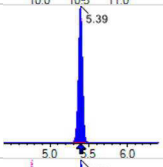
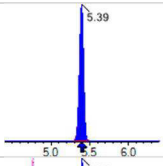
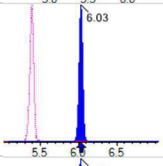
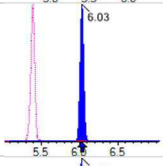
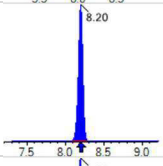
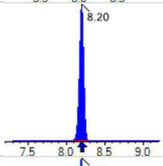
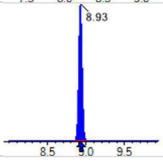
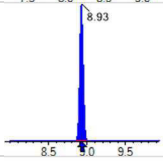
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 1802111 (299.0 / 99.0) 1181912	(5.09 , 1.00) (0.00 , N/A , -0.1)	28759.6 5717.5	0.6558 100.0 100.0	4.6609	N/A			
PFPeS	(349.0 / 80.0) 3536186 (349.0 / 99.0) 1201637	(5.81 , 0.89) (N/A , 0.00 , 0.1)	329263.3 8152.4	0.3398 100.0 100.0	4.9413	N/A			
PFHxS	(399.0 / 80.0) 2724263 (399.0 / 99.0) 975053	(6.51 , 1.00) (0.00 , N/A , -0.1)	102197.7 2678.0	0.3579 100.0 100.0	4.6443	N/A			
PFHpS	(449.0 / 80.0) 3120064 (449.0 / 99.0) 877260	(7.18 , 0.92) (N/A , 0.00 , 0.0)	27913500.2 16482.5	0.2812 100.0 100.0	4.7378	N/A			
PFOS	(499.0 / 80.0) 4153608 (499.0 / 99.0) 901603	(7.78 , 1.00) (0.00 , N/A , 0.0)	23995.7 2113.0	0.2171 100.0 100.0	4.6262	N/A			
PFNS	(549.0 / 80.0) 3988190 (549.0 / 99.0) 1015007	(8.33 , 1.07) (N/A , 0.00 , 0.0)	10425.7 125937.0	0.2545 100.0 100.0	5.0388	N/A			
PFDS	(599.0 / 80.0) 4762806 (599.0 / 99.0) 1138878	(8.74 , 1.12) (N/A , 0.00 , 0.1)	8276.7 4896.4	0.2391 100.0 100.0	4.9680	N/A			
PFDoS	(699.0 / 80.0) 4015159 (699.0 / 99.0) 899228	(9.14 , 1.18) (N/A , 0.00 , 0.0)	5765.2 3017.6	0.2240 100.0 100.0	5.1970	N/A			
4:2FTS	(327.0 / 307.0) 3000111 (327.0 / 81.0) 1809706	(4.92 , 1.00) (0.00 , N/A , 0.1)	3699.1 2769.9	0.6032 100.0 100.0	19.8562	N/A			
6:2FTS	(427.0 / 407.0) 1890332 (427.0 / 81.0) 1341081	(6.19 , 1.00) (0.00 , N/A , 0.0)	3514.7 4690.0	0.7094 100.0 100.0	18.4916	N/A			
8:2FTS	(527.0 / 507.0) 2184249 (527.0 / 81.0) 1669985	(7.36 , 1.00) (0.00 , N/A , -0.1)	4181.5 3212.8	0.7646 100.0 100.0	18.8500	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (5)
Acquired: 2023/04/07 - 13:29

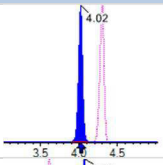
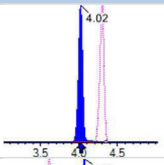
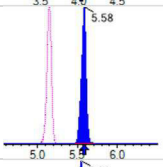
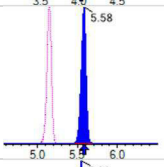
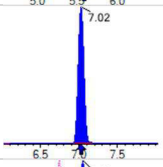
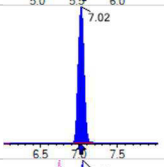
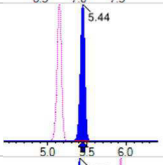
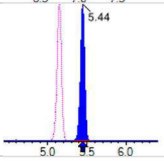
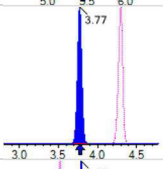
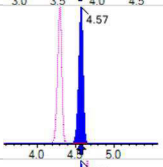
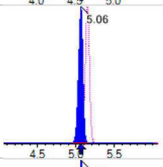
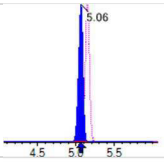
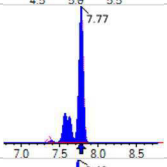
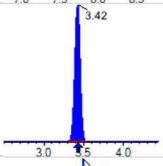
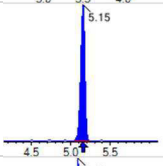
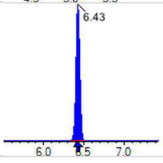
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 6194031 (498.0 / 478.0) 151276	(9.76 , 1.00) (0.00 , N/A , 0.0)	5940.2 1461.6	0.0244 100.0 100.0	5.3487	N/A			
NMeFOSA	(512.0 / 219.0) 5269342 (512.0 / 169.0) 4475301	(10.41 , 1.00) (0.00 , N/A , 1.2)	5192.0 6034.3	0.8493 100.0 100.0	21.1467	N/A			
NEtFOSA	(526.0 / 219.0) 5831316 (526.0 / 169.0) 7345117	(10.58 , 1.00) (0.00 , N/A , 1.0)	8432.9 6636.1	1.2596 100.0 100.0	20.6620	N/A			
NMeFOSAA	(570.0 / 419.0) 643753 (570.0 / 483.0) 330984	(7.75 , 1.00) (0.00 , N/A , 0.0)	4042.6 510.4	0.5141 100.0 100.0	4.7525	N/A			
NEtFOSAA	(584.0 / 419.0) 582979 (584.0 / 526.0) 356273	(8.01 , 1.00) (0.01 , N/A , 0.0)	2330.2 977.3	0.6111 100.0 100.0	4.9028	N/A			
NMeFOSE	(616.0 / 59.0) 2075345	(10.35 , 1.00) (0.01 , N/A , 0.0)	2076.4	N/A 0.0 0.0	20.3658	N/A			
NEtFOSE	(630.0 / 59.0) 2577940	(10.53 , 1.00) (0.01 , N/A , 0.0)	1264.6	N/A 0.0 0.0	20.2623	N/A			
HFPO-DA	(285.0 / 169.0) 1189265 (285.0 / 185.0) 3485809	(5.39 , 1.00) (0.00 , N/A , 0.0)	3173.1 3376.3	2.9311 100.0 100.0	9.7146	N/A			
ADONA	(377.0 / 85.0) 4613817 (377.0 / 251.0) 478716	(6.03 , 1.12) (N/A , 0.00 , 0.0)	5491.2 1861.0	0.1038 100.0 100.0	10.3093	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 12976878 (533.0 / 353.0) 4186782	(8.20 , 1.52) (N/A , 0.00 , 0.0)	6824.6 4167.5	0.3226 100.0 100.0	9.7808	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 8640893 (633.0 / 453.0) 2949638	(8.93 , 1.65) (N/A , 0.00 , 0.0)	5222.0 3742.1	0.3414 100.0 100.0	9.8833	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (5)
Acquired: 2023/04/07 - 13:29

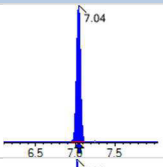
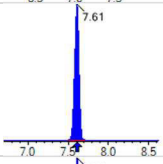
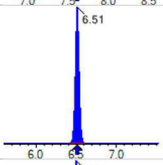
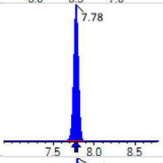
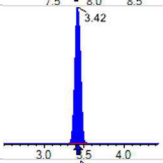
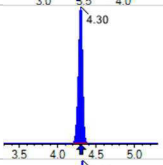
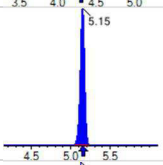
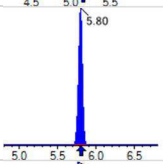
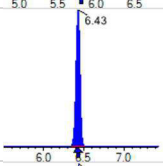
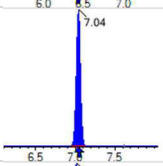
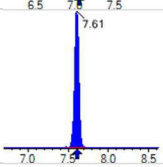
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 163911 (241.0 / 117.0) 252257	(4.02 , 0.94) (N/A , 0.00 , 0.0)	1816.3 1038.6	1.5390 100.0 100.0	19.6963	N/A			
5:3FTCA	(341.0 / 236.7) 786050 (341.0 / 217.0) 1470664	(5.58 , 1.08) (N/A , 0.00 , 0.2)	1430.0 1550.1	1.8710 100.0 100.0	19.3879	N/A			
7:3FTCA	(441.0 / 317.0) 1522611 (441.0 / 337.0) 1253632	(7.02 , 1.36) (N/A , 0.00 , -0.1)	1526.3 1514.6	0.8233 100.0 100.0	20.6218	N/A			
PFEESA	(315.0 / 135.0) 2957225 (315.0 / 83.0) 707169	(5.44 , 1.06) (N/A , 0.00 , 0.0)	3888.3 1331.2	0.2391 100.0 100.0	9.6152	N/A			
PFMPA	(229.0 / 85.0) 449123	(3.77 , 0.88) (N/A , 0.00 , 0.0)	3734.9	N/A 0.0 0.0	10.3462	N/A			
PFMBA	(279.0 / 85.0) 1377295	(4.57 , 1.06) (N/A , 0.00 , 0.0)	4229.4	N/A 0.0 0.0	10.1382	N/A			
NFDHA	(295.0 / 201.0) 1226986 (295.0 / 85.0) 1198262	(5.06 , 0.98) (N/A , 0.00 , 0.0)	3526.6 4203.9	0.9766 100.0 100.0	10.3767	N/A			
TDCA	(499.0 / 80.0) 3796430	(7.77 , 1.00) (N/A , 0.00 , 0.0)	31597.4	N/A 0.0 0.0	5.0305	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 107184	(3.42 , N/A) (N/A , 0.00 , N/A)	1496.3	N/A	0.9402 [1.0000]	94.0% { 100.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 115205	(5.15 , N/A) (N/A , 0.00 , N/A)	987.4	N/A	0.8348 [1.0000]	83.5% { 100.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 278201	(6.43 , N/A) (N/A , 0.00 , N/A)	3446.2	N/A	0.8957 [1.0000]	89.6% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (5)
Acquired: 2023/04/07 - 13:29

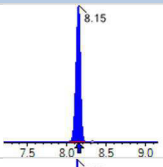
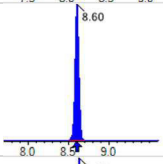
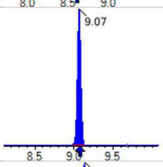
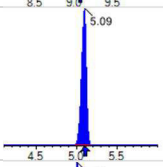
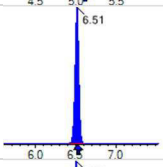
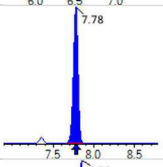
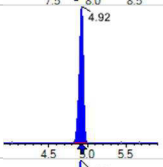
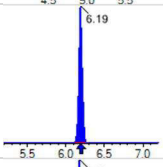
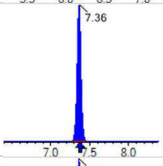
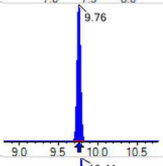
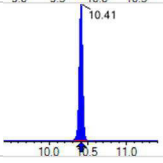
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 272909	(7.04 , N/A) (N/A , 0.00 , N/A)	2249.3	N/A	0.9257 [1.0000]	92.6% { 100.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 274149	(7.61 , N/A) (N/A , 0.00 , N/A)	1906.0	N/A	0.8844 [1.0000]	88.4% { 100.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 420806	(6.51 , N/A) (N/A , 0.00 , N/A)	2471.0	N/A	0.9381 [1.0000]	93.8% { 100.0% }			
13C4_PFOS_IIS	(503.0 / 79.9) 606469	(7.78 , N/A) (N/A , 0.00 , N/A)	1757.3	N/A	0.8715 [1.0000]	87.1% { 100.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 944355	(3.42 , N/A) (N/A , 0.00 , N/A)	4480.7	N/A	8.2153 [8.0000]	102.7% { 100.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 828199	(4.30 , N/A) (N/A , 0.00 , N/A)	3950.0	N/A	4.5535 [4.0000]	113.8% { 100.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 486916	(5.15 , N/A) (N/A , 0.00 , N/A)	2059.3	N/A	2.2091 [2.0000]	110.5% { 100.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 499076	(5.80 , N/A) (N/A , 0.00 , N/A)	62118.3	N/A	2.2611 [2.0000]	113.1% { 100.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 561765	(6.43 , N/A) (N/A , 0.00 , N/A)	38205.1	N/A	1.9616 [2.0000]	98.1% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 270066	(7.04 , N/A) (N/A , 0.00 , N/A)	18758.6	N/A	1.0158 [1.0000]	101.6% { 100.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 330788	(7.61 , N/A) (N/A , 0.00 , N/A)	5688.3	N/A	1.1046 [1.0000]	110.5% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (5)
Acquired: 2023/04/07 - 13:29

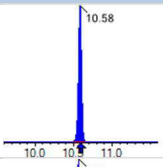
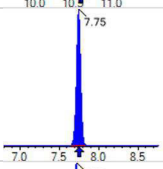
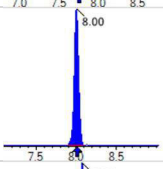
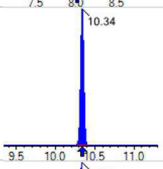
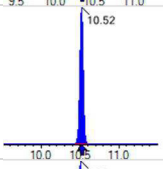
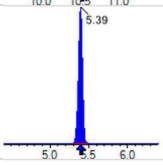
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 317351	(8.15 , N/A) (N/A , 0.00 , N/A)	2300.0	N/A	1.0993 [1.0000]	109.9% { 100.0% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 266749	(8.60 , N/A) (N/A , 0.00 , N/A)	3318.9	N/A	1.0218 [1.0000]	102.2% { 100.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 281608	(9.07 , N/A) (N/A , 0.00 , N/A)	1212.6	N/A	1.1262 [1.0000]	112.6% { 100.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1082946	(5.09 , N/A) (N/A , 0.00 , N/A)	2265.7	N/A	1.9704 [2.0000]	98.5% { 100.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 800621	(6.51 , N/A) (N/A , 0.00 , N/A)	3232.8	N/A	2.0352 [2.0000]	101.8% { 100.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1578724	(7.78 , N/A) (N/A , 0.00 , N/A)	1502.0	N/A	2.1382 [2.0000]	106.9% { 100.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 196963	(4.92 , N/A) (N/A , 0.00 , N/A)	1370.0	N/A	3.9148 [4.0000]	97.9% { 100.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 265172	(6.19 , N/A) (N/A , 0.00 , N/A)	8158.5	N/A	3.9705 [4.0000]	99.3% { 100.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 327426	(7.36 , N/A) (N/A , 0.00 , N/A)	2256.9	N/A	3.9826 [4.0000]	99.6% { 100.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2727370	(9.76 , N/A) (N/A , 0.00 , N/A)	4314.4	N/A	2.1833 [2.0000]	109.2% { 100.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 608077	(10.41 , N/A) (N/A , 0.00 , N/A)	2422.6	N/A	2.1462 [2.0000]	107.3% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (5)
Acquired: 2023/04/07 - 13:29

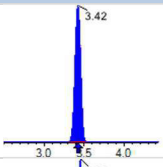
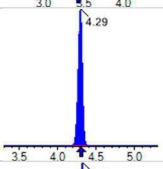
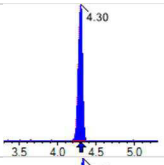
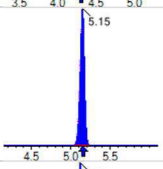
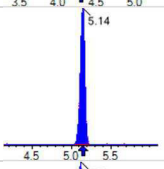
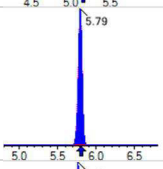
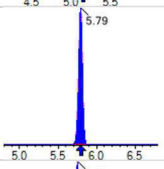
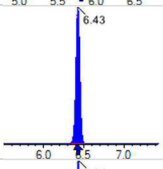
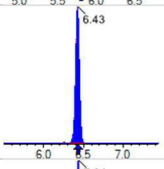
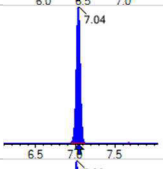
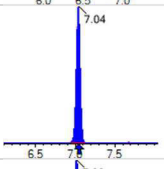
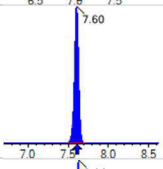
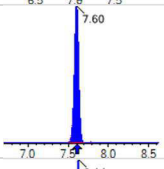
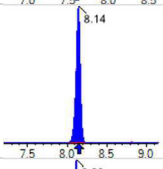
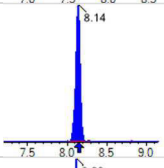
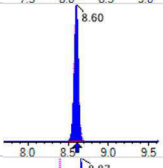
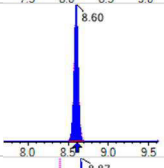
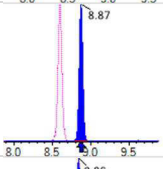
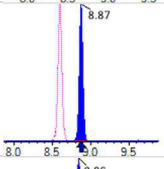
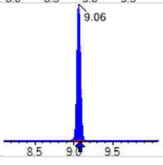
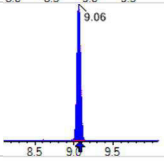
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 521036	(10.58 , N/A) (N/A , 0.00 , N/A)	3271.0	N/A	2.2461 [2.0000]	112.3% { 100.0% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 655557	(7.75 , N/A) (N/A , 0.00 , N/A)	4259.3	N/A	4.2315 [4.0000]	105.8% { 100.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 540357	(8.00 , N/A) (N/A , 0.00 , N/A)	6381.1	N/A	4.2472 [4.0000]	106.2% { 100.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1964221	(10.34 , N/A) (N/A , 0.00 , N/A)	1986.4	N/A	21.5785 [20.0000]	107.9% { 100.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2600016	(10.52 , N/A) (N/A , 0.00 , N/A)	1731.1	N/A	21.5859 [20.0000]	107.9% { 100.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1028346	(5.39 , N/A) (N/A , 0.00 , N/A)	2282.9	N/A	9.0918 [8.0000]	113.6% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (6)
Acquired: 2023/04/07 - 13:42

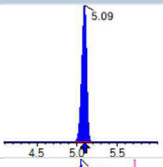
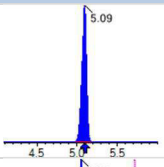
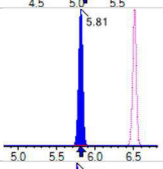
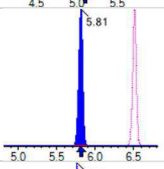
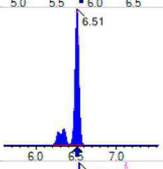
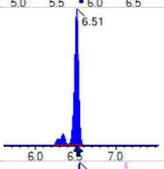
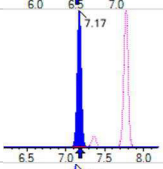
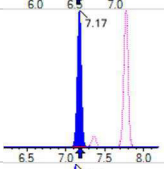
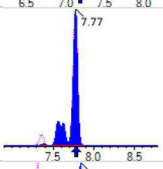
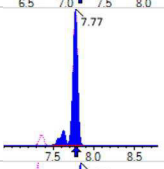
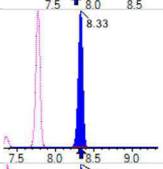
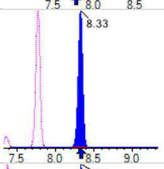
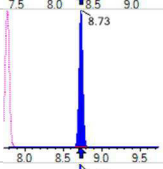
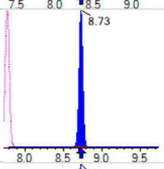
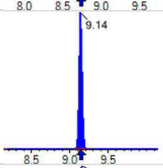
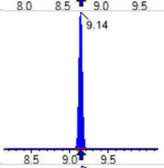
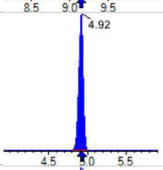
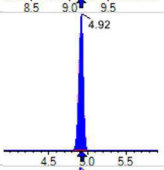
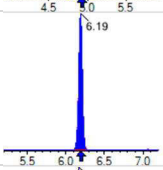
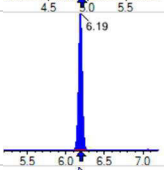
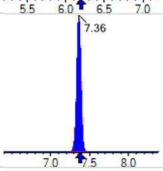
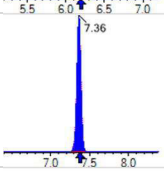
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 4137145	(3.42 , 1.00) (0.00 , N/A , 0.0)	173.8	N/A 0.0 0.0	39.0447	N/A			
PFPeA	(263.0 / 219.0) 4079423 (263.0 / 69.0) 47224	(4.29 , 1.00) (0.00 , N/A , -0.2)	5273.8 673.9	0.0116 94.0 94.0	19.2046	N/A			
PFHxA	(313.0 / 269.0) 2422517 (313.0 / 119.0) 250424	(5.15 , 1.00) (0.00 , N/A , 0.1)	4174.1 5182.5	0.1034 102.3 102.3	9.6649	N/A			
PFHpA	(363.0 / 319.0) 2350235 (363.0 / 169.0) 716791	(5.79 , 1.00) (0.00 , N/A , 0.0)	12339.1 10449559.0	0.3050 102.8 102.8	10.1277	N/A			
PFOA	(413.0 / 369.0) 3004802 (413.0 / 169.0) 965220	(6.43 , 1.00) (0.00 , N/A , 0.0)	3779.9 146164.9	0.3212 95.5 95.5	9.4021	N/A			
PFNA	(463.0 / 419.0) 2700643 (463.0 / 169.0) 560207	(7.04 , 1.00) (0.00 , N/A , 0.0)	14903.7 1688.8	0.2074 92.2 92.2	10.5988	N/A			
PFDA	(513.0 / 469.0) 3428550 (513.0 / 169.0) 365934	(7.60 , 1.00) (0.00 , N/A , 0.0)	3774.5 2121.5	0.1067 88.6 88.6	10.3428	N/A			
PFUnA	(563.0 / 519.0) 2875576 (563.0 / 169.0) 312321	(8.14 , 1.00) (0.00 , N/A , 0.2)	3184.1 1246.8	0.1086 105.2 105.2	10.4313	N/A			
PFDoA	(613.0 / 569.0) 2524868 (613.0 / 169.0) 411124	(8.60 , 1.00) (0.00 , N/A , 0.1)	3459.0 4786450.3	0.1628 109.0 109.0	10.4391	N/A			
PFTrDA	(663.0 / 619.0) 2299591 (663.0 / 169.0) 588368	(8.87 , 1.03) (N/A , 0.00 , -0.1)	3523.3 2826.4	0.2559 99.8 99.8	10.2690	N/A			
PFTeDA	(713.0 / 669.0) 2462700 (713.0 / 169.0) 550384	(9.06 , 1.00) (0.00 , N/A , 0.0)	4206.1 2347.4	0.2235 112.1 112.1	9.8279	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (6)
Acquired: 2023/04/07 - 13:42

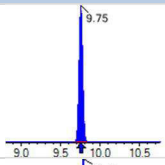
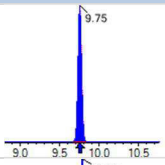
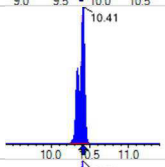
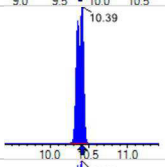
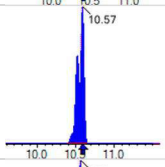
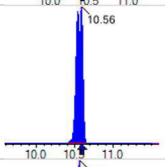
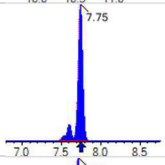
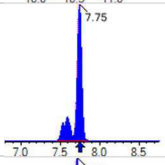
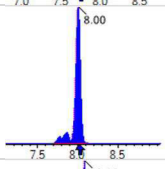
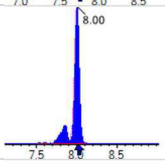
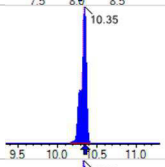
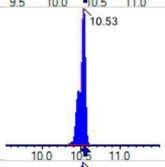
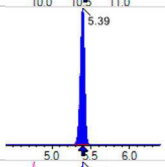
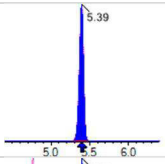
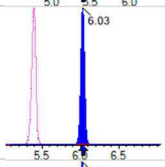
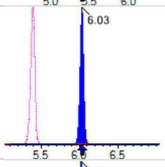
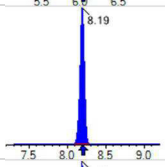
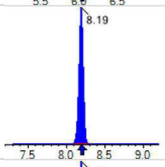
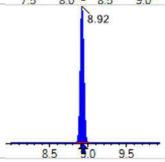
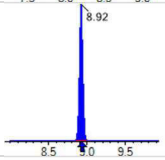
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 3702104 (299.0 / 99.0) 2388521	(5.09 , 1.00) (0.00 , N/A , 0.0)	7938.9 47310.7	0.6452 98.4 98.4	8.7370	N/A			
PFPeS	(349.0 / 80.0) 7207893 (349.0 / 99.0) 2412334	(5.81 , 0.89) (N/A , 0.00 , -0.1)	28531.7 2014324.4	0.3347 98.5 98.5	9.6865	N/A			
PFHxS	(399.0 / 80.0) 5690594 (399.0 / 99.0) 2091102	(6.51 , 1.00) (0.00 , N/A , 0.0)	12557.3 26251909.2	0.3675 102.7 102.7	9.3300	N/A			
PFHpS	(449.0 / 80.0) 6759451 (449.0 / 99.0) 1839751	(7.17 , 0.92) (N/A , -0.01 , -0.1)	33964.0 2001494.7	0.2722 96.8 96.8	9.2668	N/A			
PFOS	(499.0 / 80.0) 8761497 (499.0 / 99.0) 1924914	(7.77 , 1.00) (0.00 , N/A , 0.1)	8370.0 2626.4	0.2197 101.2 101.2	8.8102	N/A			
PFNS	(549.0 / 80.0) 8455970 (549.0 / 99.0) 2081465	(8.33 , 1.07) (N/A , -0.01 , 0.1)	14151.8 2247953.0	0.2462 96.7 96.7	9.6455	N/A			
PFDS	(599.0 / 80.0) 10089561 (599.0 / 99.0) 2259174	(8.73 , 1.12) (N/A , -0.01 , 0.0)	8984.7 10396.5	0.2239 93.6 93.6	9.5016	N/A			
PFDoS	(699.0 / 80.0) 8591847 (699.0 / 99.0) 1886362	(9.14 , 1.18) (N/A , 0.00 , 0.0)	6150.0 3981.8	0.2196 98.0 98.0	10.0403	N/A			
4:2FTS	(327.0 / 307.0) 6027171 (327.0 / 81.0) 3751262	(4.92 , 1.00) (0.00 , N/A , -0.1)	4769.5 3150.2	0.6224 103.2 103.2	36.8946	N/A			
6:2FTS	(427.0 / 407.0) 4327687 (427.0 / 81.0) 3070742	(6.19 , 1.00) (0.00 , N/A , 0.1)	3191.0 3326.7	0.7096 100.0 100.0	38.7240	N/A			
8:2FTS	(527.0 / 507.0) 4533218 (527.0 / 81.0) 3418453	(7.36 , 1.00) (0.00 , N/A , 0.0)	3319.0 4906.2	0.7541 98.6 98.6	37.5366	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (6)
Acquired: 2023/04/07 - 13:42

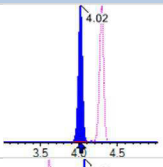
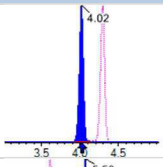
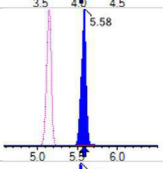
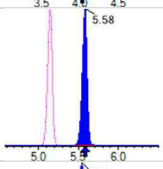
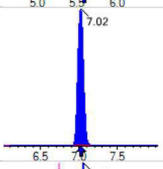
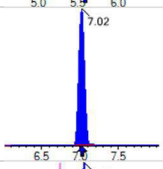
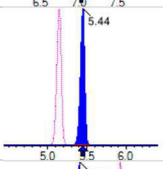
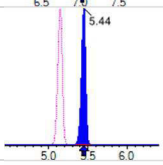
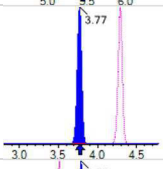
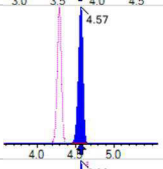
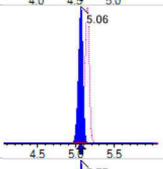
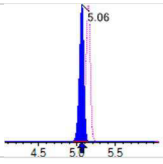
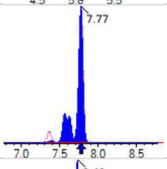
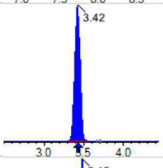
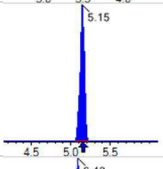
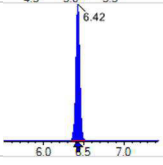
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 12174649 (498.0 / 478.0) 285205	(9.75 , 1.00) (0.00 , N/A , 0.1)	5751.8 1597.4	0.0234 95.9 95.9	9.7357	N/A			
NMeFOSA	(512.0 / 219.0) 10909503 (512.0 / 169.0) 8990993	(10.41 , 1.00) (0.00 , N/A , 1.2)	6710.1 5350.5	0.8241 97.0 97.0	40.2762	N/A			
NEtFOSA	(526.0 / 219.0) 11756415 (526.0 / 169.0) 14705540	(10.57 , 1.00) (-0.01 , N/A , 0.8)	10168.2 10806.6	1.2509 99.3 99.3	40.1900	N/A			
NMeFOSAA	(570.0 / 419.0) 1491185 (570.0 / 483.0) 709541	(7.75 , 1.00) (0.01 , N/A , 0.0)	2722.1 707.8	0.4758 92.5 92.5	10.5116	N/A			
NEtFOSAA	(584.0 / 419.0) 1306042 (584.0 / 526.0) 777437	(8.00 , 1.00) (0.01 , N/A , 0.1)	5463.1 1945.1	0.5953 97.4 97.4	9.9616	N/A			
NMeFOSE	(616.0 / 59.0) 4475552	(10.35 , 1.00) (0.01 , N/A , 0.0)	2839.4	N/A 0.0 0.0	39.5890	N/A			
NEtFOSE	(630.0 / 59.0) 5490977	(10.53 , 1.00) (0.01 , N/A , 0.0)	1580.7	N/A 0.0 0.0	39.8890	N/A			
HFPO-DA	(285.0 / 169.0) 2612074 (285.0 / 185.0) 6949073	(5.39 , 1.00) (0.00 , N/A , 0.0)	2283.0 4230.4	2.6604 90.8 90.8	20.1645	N/A			
ADONA	(377.0 / 85.0) 8744798 (377.0 / 251.0) 843221	(6.03 , 1.12) (N/A , 0.00 , -0.1)	5163.4 1886.9	0.0964 92.9 92.9	18.4660	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 25985195 (533.0 / 353.0) 8249782	(8.19 , 1.52) (N/A , -0.01 , 0.0)	6261.0 4447.2	0.3175 98.4 98.4	18.5090	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 17424801 (633.0 / 453.0) 6095209	(8.92 , 1.65) (N/A , 0.00 , -0.1)	5823.4 5399.6	0.3498 102.5 102.5	18.8350	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (6)
Acquired: 2023/04/07 - 13:42

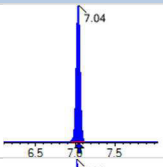
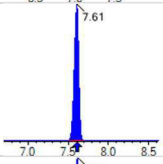
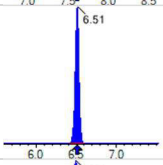
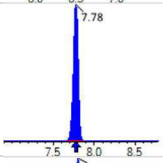
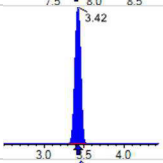
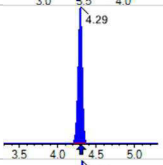
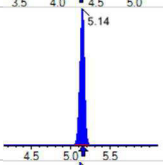
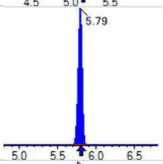
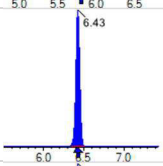
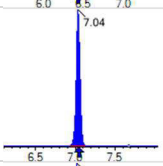
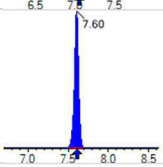
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 343300 (241.0 / 117.0) 520162	(4.02 , 0.94) (N/A , 0.00 , 0.0)	1996.0 1631.9	1.5152 98.5 98.5	37.7799	N/A			
5:3FTCA	(341.0 / 236.7) 1707427 (341.0 / 217.0) 3062777	(5.58 , 1.08) (N/A , 0.00 , 0.1)	1395.2 2194.1	1.7938 95.9 95.9	39.3701	N/A			
7:3FTCA	(441.0 / 317.0) 3113758 (441.0 / 337.0) 2698859	(7.02 , 1.36) (N/A , -0.01 , 0.0)	1806.3 2170.3	0.8668 105.3 105.3	39.4245	N/A			
PFEESA	(315.0 / 135.0) 6009504 (315.0 / 83.0) 1398503	(5.44 , 1.06) (N/A , 0.00 , 0.0)	3655.6 2823.9	0.2327 97.3 97.3	18.2665	N/A			
PFMPA	(229.0 / 85.0) 889868	(3.77 , 0.88) (N/A , 0.00 , 0.0)	4853.2	N/A 0.0 0.0	18.7739	N/A			
PFMBA	(279.0 / 85.0) 2861616	(4.57 , 1.06) (N/A , 0.00 , 0.0)	5021.5	N/A 0.0 0.0	19.2911	N/A			
NFDHA	(295.0 / 201.0) 2588280 (295.0 / 85.0) 2490318	(5.06 , 0.98) (N/A , 0.00 , 0.0)	1596.2 3526.4	0.9622 98.5 98.5	20.4632	N/A			
TDCA	(499.0 / 80.0) 7635163	(7.77 , 1.00) (N/A , 0.00 , 0.0)	38436.2	N/A 0.0 0.0	9.1341	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 108393	(3.42 , N/A) (N/A , 0.00 , N/A)	1241.1	N/A	0.9508 [1.0000]	95.1% { 101.1% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 127143	(5.15 , N/A) (N/A , 0.00 , N/A)	8720.3	N/A	0.9213 [1.0000]	92.1% { 110.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 313965	(6.42 , N/A) (N/A , 0.00 , N/A)	880.9	N/A	1.0108 [1.0000]	101.1% { 112.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (6)
Acquired: 2023/04/07 - 13:42

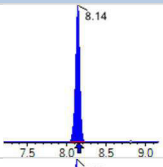
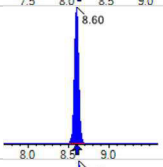
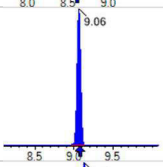
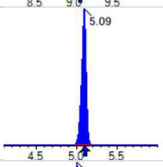
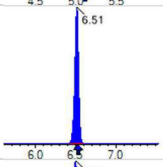
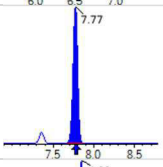
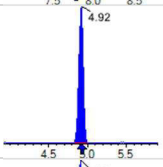
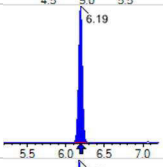
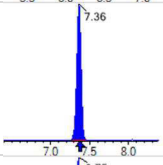
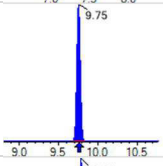
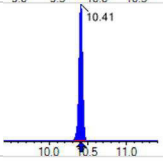
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 290702	(7.04 , N/A) (N/A , -0.01 , N/A)	9114.2	N/A	0.9861 [1.0000]	98.6% { 106.5% }			
13C2_PFDA_IIS	(515.0 / 470.1) 316089	(7.61 , N/A) (N/A , 0.00 , N/A)	45475.6	N/A	1.0197 [1.0000]	102.0% { 115.3% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 477248	(6.51 , N/A) (N/A , 0.00 , N/A)	5406.8	N/A	1.0639 [1.0000]	106.4% { 113.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 720608	(7.78 , N/A) (N/A , 0.00 , N/A)	2173.5	N/A	1.0355 [1.0000]	103.5% { 118.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 975037	(3.42 , N/A) (N/A , 0.00 , N/A)	4588.8	N/A	8.3876 [8.0000]	104.8% { 103.2% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 904320	(4.29 , N/A) (N/A , 0.00 , N/A)	2616.5	N/A	4.5052 [4.0000]	112.6% { 109.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 520847	(5.14 , N/A) (N/A , 0.00 , N/A)	2827.7	N/A	2.1411 [2.0000]	107.1% { 107.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 541012	(5.79 , N/A) (N/A , 0.00 , N/A)	2643.8	N/A	2.2209 [2.0000]	111.0% { 108.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 643544	(6.43 , N/A) (N/A , 0.00 , N/A)	10374.8	N/A	1.9912 [2.0000]	99.6% { 114.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 281978	(7.04 , N/A) (N/A , 0.00 , N/A)	2841.1	N/A	0.9957 [1.0000]	99.6% { 104.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 334715	(7.60 , N/A) (N/A , 0.00 , N/A)	2745.4	N/A	0.9695 [1.0000]	96.9% { 101.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (6)
Acquired: 2023/04/07 - 13:42

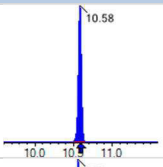
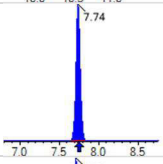
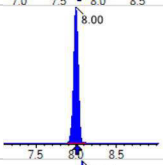
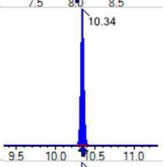
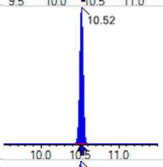
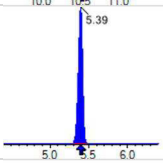
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 307689	(8.14 , N/A) (N/A , -0.01 , N/A)	2482.2	N/A	0.9244 [1.0000]	92.4% { 97.0% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 278327	(8.60 , N/A) (N/A , -0.01 , N/A)	1412.7	N/A	0.9247 [1.0000]	92.5% { 104.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 279452	(9.06 , N/A) (N/A , 0.00 , N/A)	1618.7	N/A	0.9693 [1.0000]	96.9% { 99.2% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1186802	(5.09 , N/A) (N/A , 0.00 , N/A)	1942.4	N/A	1.9040 [2.0000]	95.2% { 109.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 832485	(6.51 , N/A) (N/A , 0.00 , N/A)	2593.0	N/A	1.8659 [2.0000]	93.3% { 104.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1748624	(7.77 , N/A) (N/A , 0.00 , N/A)	1491.8	N/A	1.9932 [2.0000]	99.7% { 110.8% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 212958	(4.92 , N/A) (N/A , 0.00 , N/A)	1647.5	N/A	3.7322 [4.0000]	93.3% { 108.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 289895	(6.19 , N/A) (N/A , 0.00 , N/A)	2562.5	N/A	3.8273 [4.0000]	95.7% { 109.3% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 341251	(7.36 , N/A) (N/A , 0.00 , N/A)	2412.0	N/A	3.6599 [4.0000]	91.5% { 104.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2945179	(9.75 , N/A) (N/A , 0.00 , N/A)	4771.2	N/A	1.9842 [2.0000]	99.2% { 108.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 661000	(10.41 , N/A) (N/A , 0.00 , N/A)	2146.6	N/A	1.9634 [2.0000]	98.2% { 108.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (6)
Acquired: 2023/04/07 - 13:42

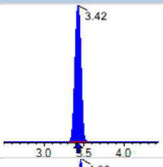
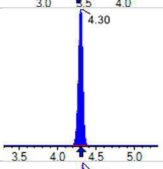
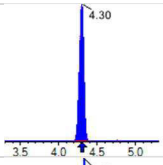
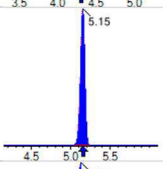
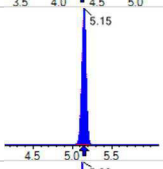
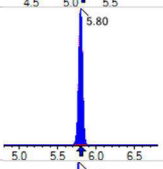
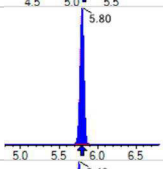
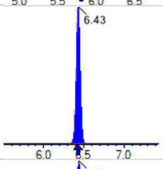
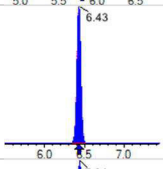
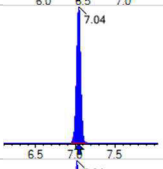
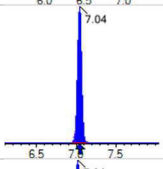
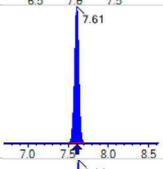
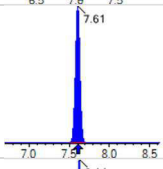
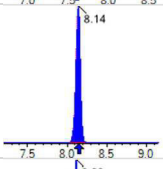
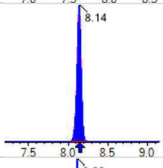
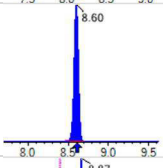
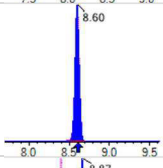
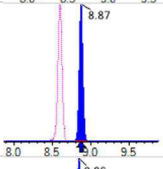
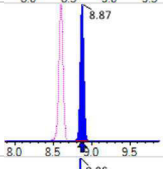
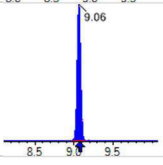
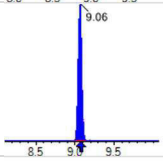
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 540046	(10.58 , N/A) (N/A , 0.00 , N/A)	3661.6	N/A	1.9593 [2.0000]	98.0% { 103.6% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 686560	(7.74 , N/A) (N/A , -0.01 , N/A)	2052.9	N/A	3.7297 [4.0000]	93.2% { 104.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 595800	(8.00 , N/A) (N/A , 0.00 , N/A)	108608.4	N/A	3.9412 [4.0000]	98.5% { 110.3% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2179079	(10.34 , N/A) (N/A , 0.00 , N/A)	1502.2	N/A	20.1472 [20.0000]	100.7% { 110.9% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2813121	(10.52 , N/A) (N/A , 0.00 , N/A)	1563.9	N/A	19.6559 [20.0000]	98.3% { 108.2% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1088141	(5.39 , N/A) (N/A , 0.00 , N/A)	2277.7	N/A	8.7171 [8.0000]	109.0% { 105.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (7)
Acquired: 2023/04/07 - 13:55

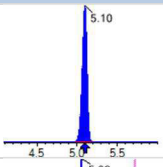
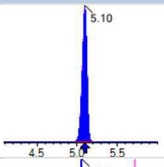
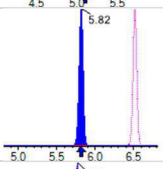
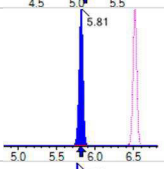
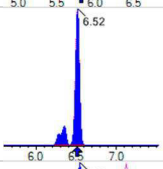
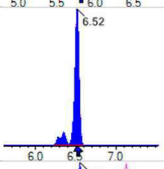
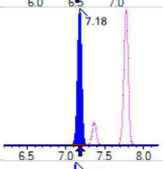
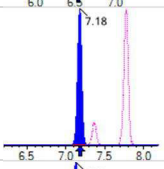
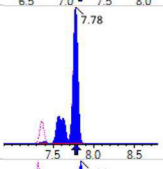
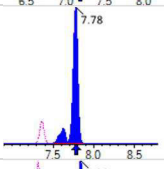
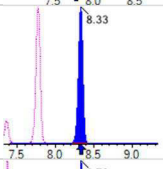
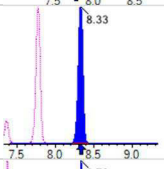
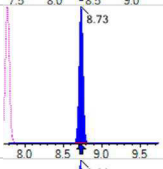
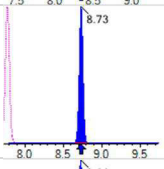
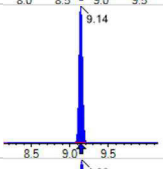
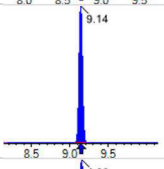
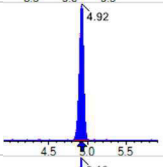
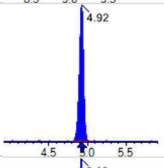
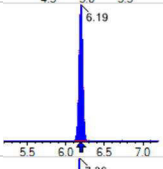
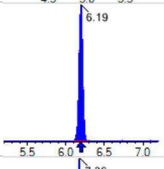
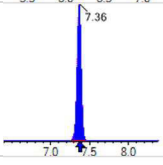
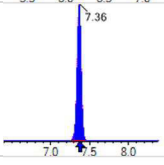
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 7339533	(3.42 , 1.00) (0.00 , N/A , 0.0)	191.1	N/A 0.0 0.0	79.1626	N/A			
PFPeA	(263.0 / 219.0) 7422142 (263.0 / 69.0) 85322	(4.30 , 1.00) (0.00 , N/A , 0.0)	7230.7 1054.4	0.0115 93.3 93.3	38.2835	N/A			
PFHxA	(313.0 / 269.0) 4722065 (313.0 / 119.0) 425728	(5.15 , 1.00) (0.00 , N/A , 0.0)	7569.6 99096.5	0.0902 89.2 89.2	19.4364	N/A			
PFHpA	(363.0 / 319.0) 3972105 (363.0 / 169.0) 1252436	(5.80 , 1.00) (0.00 , N/A , -0.1)	12349.0 1477486.7	0.3153 106.3 106.3	18.5379	N/A			
PFOA	(413.0 / 369.0) 5820558 (413.0 / 169.0) 1784110	(6.43 , 1.00) (0.00 , N/A , 0.0)	5573.4 12530.2	0.3065 91.1 91.1	19.1004	N/A			
PFNA	(463.0 / 419.0) 4741031 (463.0 / 169.0) 1004985	(7.04 , 1.00) (0.00 , N/A , 0.1)	10364.8 5146.1	0.2120 94.3 94.3	17.8186	N/A			
PFDA	(513.0 / 469.0) 6376236 (513.0 / 169.0) 670152	(7.61 , 1.00) (0.00 , N/A , 0.0)	3873.1 2714.9	0.1051 87.3 87.3	20.4475	N/A			
PFUnA	(563.0 / 519.0) 4937936 (563.0 / 169.0) 616134	(8.14 , 1.00) (0.00 , N/A , 0.1)	4424.9 2601.2	0.1248 120.8 120.8	19.2052	N/A			
PFDoA	(613.0 / 569.0) 4718327 (613.0 / 169.0) 786442	(8.60 , 1.00) (0.00 , N/A , 0.2)	3793.9 2750.8	0.1667 111.5 111.5	18.7257	N/A			
PFTrDA	(663.0 / 619.0) 4141204 (663.0 / 169.0) 1081180	(8.87 , 1.03) (N/A , 0.00 , 0.0)	4906.2 2994.0	0.2611 101.8 101.8	17.7513	N/A			
PFTeDA	(713.0 / 669.0) 4463058 (713.0 / 169.0) 953117	(9.06 , 1.00) (0.00 , N/A , -0.1)	3403.5 2565.8	0.2136 107.1 107.1	19.8027	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (7)
Acquired: 2023/04/07 - 13:55

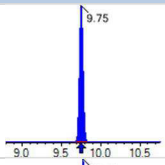
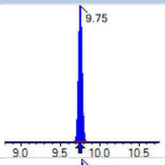
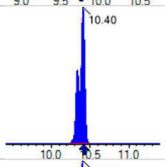
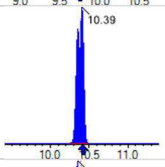
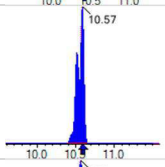
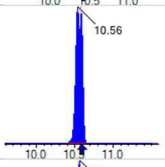
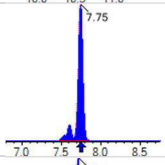
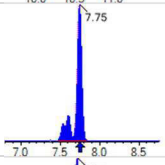
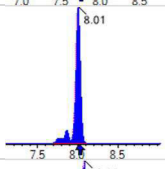
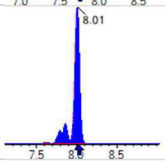
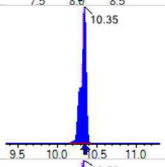
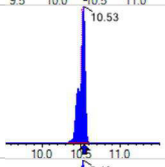
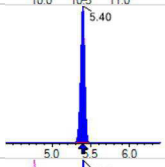
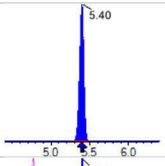
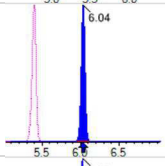
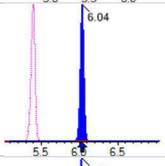
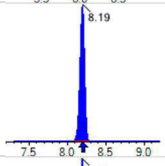
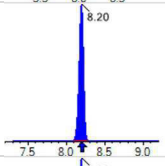
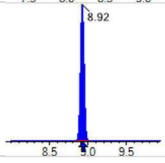
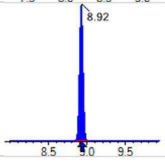
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 6766675 (299.0 / 99.0) 4330616	(5.10 , 1.00) (0.00 , N/A , 0.0)	9890.2 20261.2	0.6400 97.6 97.6	17.0514	N/A			
PFPeS	(349.0 / 80.0) 13221875 (349.0 / 99.0) 4693253	(5.82 , 0.89) (N/A , 0.00 , 0.0)	21498.6 31346.9	0.3550 104.5 104.5	17.7434	N/A			
PFHxS	(399.0 / 80.0) 10757565 (399.0 / 99.0) 3894350	(6.52 , 1.00) (0.00 , N/A , 0.1)	6775.2 33958500.0	0.3620 101.1 101.1	17.6127	N/A			
PFHpS	(449.0 / 80.0) 12608485 (449.0 / 99.0) 3443559	(7.18 , 0.92) (N/A , 0.00 , 0.0)	26541.0 46341.8	0.2731 97.1 97.1	18.7213	N/A			
PFOS	(499.0 / 80.0) 15869282 (499.0 / 99.0) 3613244	(7.78 , 1.00) (0.00 , N/A , 0.0)	7363.0 1238076.9	0.2277 104.9 104.9	17.2829	N/A			
PFNS	(549.0 / 80.0) 15452116 (549.0 / 99.0) 3820418	(8.33 , 1.07) (N/A , 0.00 , 0.0)	14719.7 30307.7	0.2472 97.1 97.1	19.0899	N/A			
PFDS	(599.0 / 80.0) 17061128 (599.0 / 99.0) 4264171	(8.73 , 1.12) (N/A , 0.00 , 0.0)	11648.1 9727.1	0.2499 104.5 104.5	17.4015	N/A			
PFDoS	(699.0 / 80.0) 15095220 (699.0 / 99.0) 3488262	(9.14 , 1.18) (N/A , 0.00 , 0.0)	5543.8 4413.5	0.2311 103.2 103.2	19.1053	N/A			
4:2FTS	(327.0 / 307.0) 11903801 (327.0 / 81.0) 7183153	(4.92 , 1.00) (0.00 , N/A , 0.1)	5578.9 3843.3	0.6034 100.0 100.0	72.5899	N/A			
6:2FTS	(427.0 / 407.0) 7641529 (427.0 / 81.0) 5327307	(6.19 , 1.00) (0.00 , N/A , 0.0)	3155.2 3748.5	0.6972 98.3 98.3	71.3488	N/A			
8:2FTS	(527.0 / 507.0) 8829373 (527.0 / 81.0) 6884176	(7.36 , 1.00) (0.00 , N/A , 0.0)	4002.0 4835.9	0.7797 102.0 102.0	71.1124	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (7)
Acquired: 2023/04/07 - 13:55

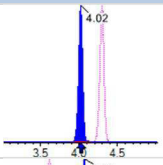
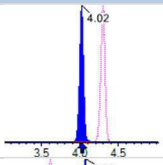
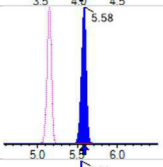
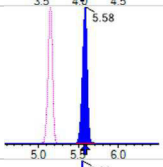
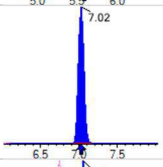
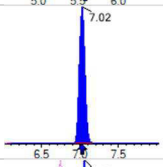
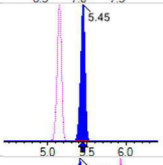
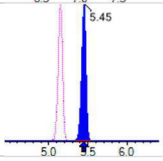
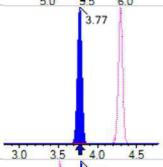
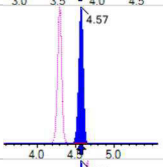
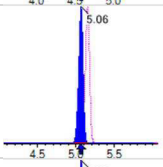
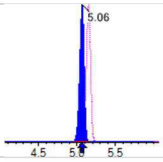
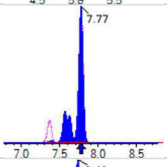
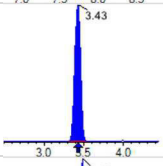
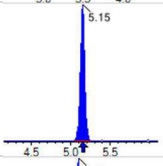
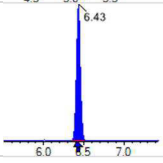
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 21270156 (498.0 / 478.0) 545447	(9.75 , 1.00) (0.00 , N/A , 0.0)	6446.4 2582.4	0.0256 105.0 105.0	18.6763	N/A			
NMeFOSA	(512.0 / 219.0) 19832904 (512.0 / 169.0) 16659342	(10.40 , 1.00) (0.00 , N/A , 1.1)	7577.1 5949.3	0.8400 98.9 98.9	72.1793	N/A			
NEtFOSA	(526.0 / 219.0) 21425299 (526.0 / 169.0) 26679925	(10.57 , 1.00) (-0.01 , N/A , 0.8)	18770.0 16843.7	1.2453 98.9 98.9	77.2641	N/A			
NMeFOSAA	(570.0 / 419.0) 2650103 (570.0 / 483.0) 1280964	(7.75 , 1.00) (0.00 , N/A , 0.0)	2560.4 751.3	0.4834 94.0 94.0	18.8789	N/A			
NEtFOSAA	(584.0 / 419.0) 2399835 (584.0 / 526.0) 1390785	(8.01 , 1.00) (0.01 , N/A , 0.0)	2601.5 2716.3	0.5795 94.8 94.8	18.0251	N/A			
NMeFOSE	(616.0 / 59.0) 8135902	(10.35 , 1.00) (0.01 , N/A , 0.0)	3828.0	N/A 0.0 0.0	80.4269	N/A			
NEtFOSE	(630.0 / 59.0) 10160557	(10.53 , 1.00) (0.01 , N/A , 0.0)	1903.3	N/A 0.0 0.0	78.1393	N/A			
HFPO-DA	(285.0 / 169.0) 4623929 (285.0 / 185.0) 12747948	(5.40 , 1.00) (0.00 , N/A , -0.1)	3328.7 4998.2	2.7570 94.1 94.1	38.0427	N/A			
ADONA	(377.0 / 85.0) 15924740 (377.0 / 251.0) 1730435	(6.04 , 1.12) (N/A , 0.00 , 0.0)	5895.2 2591.5	0.1087 104.7 104.7	35.8387	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 44667283 (533.0 / 353.0) 15442894	(8.19 , 1.52) (N/A , 0.00 , 0.0)	5816.5 6465.7	0.3457 107.2 107.2	33.9081	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 29245969 (633.0 / 453.0) 10545901	(8.92 , 1.65) (N/A , 0.00 , 0.0)	5115.8 5013.4	0.3606 105.6 105.6	33.6916	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (7)
Acquired: 2023/04/07 - 13:55

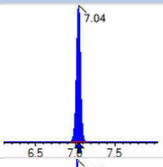
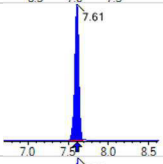
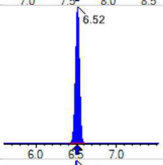
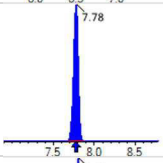
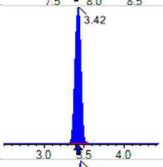
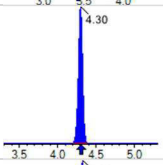
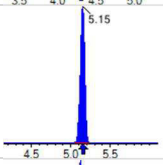
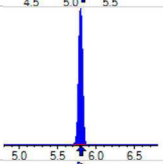
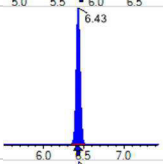
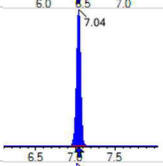
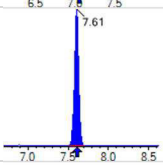
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 619295 (241.0 / 117.0) 999642	(4.02 , 0.94) (N/A , 0.00 , 0.1)	2384.2 2330.2	1.6142 104.9 104.9	74.6724	N/A			
5:3FTCA	(341.0 / 236.7) 3272240 (341.0 / 217.0) 6079290	(5.58 , 1.08) (N/A , 0.00 , 0.0)	2196.4 3018.2	1.8578 99.3 99.3	77.8433	N/A			
7:3FTCA	(441.0 / 317.0) 6062286 (441.0 / 337.0) 4970756	(7.02 , 1.36) (N/A , 0.00 , 0.0)	2456.0 2547.8	0.8199 99.6 99.6	79.1898	N/A			
PFEESA	(315.0 / 135.0) 10774783 (315.0 / 83.0) 2446764	(5.45 , 1.06) (N/A , 0.00 , 0.0)	3608.5 3537.8	0.2271 95.0 95.0	33.7891	N/A			
PFMPA	(229.0 / 85.0) 1595617	(3.77 , 0.88) (N/A , 0.00 , 0.0)	4936.9	N/A 0.0 0.0	36.8835	N/A			
PFMBA	(279.0 / 85.0) 5317137	(4.57 , 1.06) (N/A , 0.00 , 0.0)	4936.5	N/A 0.0 0.0	39.2734	N/A			
NFDHA	(295.0 / 201.0) 4672619 (295.0 / 85.0) 4584372	(5.06 , 0.98) (N/A , 0.00 , 0.0)	3346.0 4135.3	0.9811 100.5 100.5	38.1132	N/A			
TDCA	(499.0 / 80.0) 13883272	(7.77 , 1.00) (N/A , 0.00 , 0.0)	55992.3	N/A 0.0 0.0	17.9883	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 104308	(3.43 , N/A) (N/A , 0.00 , N/A)	991.7	N/A	0.9149 [1.0000]	91.5% { 97.3% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 126728	(5.15 , N/A) (N/A , 0.00 , N/A)	807.2	N/A	0.9183 [1.0000]	91.8% { 110.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 314343	(6.43 , N/A) (N/A , 0.01 , N/A)	3092.8	N/A	1.0120 [1.0000]	101.2% { 113.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (7)
Acquired: 2023/04/07 - 13:55

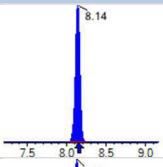
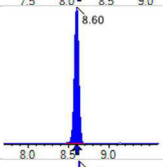
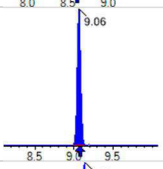
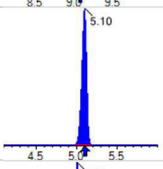
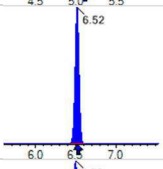
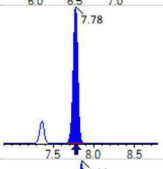
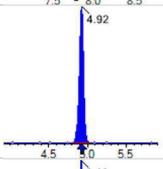
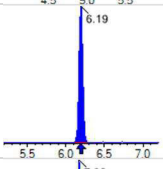
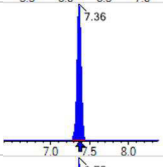
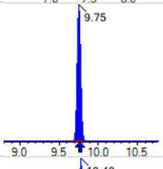
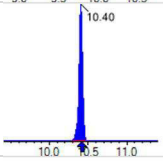
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 312224	(7.04 , N/A) (N/A , 0.00 , N/A)	37538.6	N/A	1.0591 [1.0000]	105.9% { 114.4% }			
13C2_PFDA_IIS	(515.0 / 470.1) 281046	(7.61 , N/A) (N/A , 0.00 , N/A)	344606.3	N/A	0.9066 [1.0000]	90.7% { 102.5% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 444848	(6.52 , N/A) (N/A , 0.00 , N/A)	1773.8	N/A	0.9917 [1.0000]	99.2% { 105.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 681178	(7.78 , N/A) (N/A , 0.00 , N/A)	2910.2	N/A	0.9788 [1.0000]	97.9% { 112.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 853161	(3.42 , N/A) (N/A , 0.00 , N/A)	4355.8	N/A	7.6266 [8.0000]	95.3% { 90.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 825367	(4.30 , N/A) (N/A , 0.00 , N/A)	3324.3	N/A	4.1253 [4.0000]	103.1% { 99.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 504845	(5.15 , N/A) (N/A , 0.00 , N/A)	1924.7	N/A	2.0822 [2.0000]	104.1% { 103.7% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 499537	(5.80 , N/A) (N/A , 0.00 , N/A)	2336.1	N/A	2.0574 [2.0000]	102.9% { 100.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 613633	(6.43 , N/A) (N/A , 0.00 , N/A)	3785.4	N/A	1.8964 [2.0000]	94.8% { 109.2% }			
13C9_PFNA_EIS	(472.0 / 427.0) 294445	(7.04 , N/A) (N/A , 0.00 , N/A)	3080.2	N/A	0.9681 [1.0000]	96.8% { 109.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 314867	(7.61 , N/A) (N/A , 0.00 , N/A)	2171.6	N/A	1.0257 [1.0000]	102.6% { 95.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (7)
Acquired: 2023/04/07 - 13:55

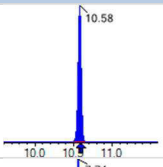
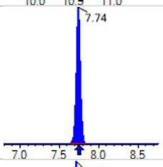
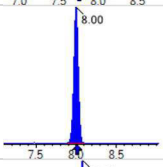
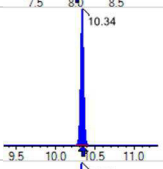
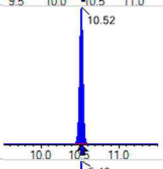
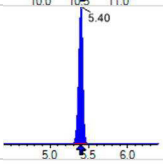
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 286980	(8.14 , N/A) (N/A , -0.01 , N/A)	4010.8	N/A	0.9697 [1.0000]	97.0% { 90.4% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 289952	(8.60 , N/A) (N/A , 0.00 , N/A)	3179036.9	N/A	1.0834 [1.0000]	108.3% { 108.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 251342	(9.06 , N/A) (N/A , 0.00 , N/A)	1532.4	N/A	0.9805 [1.0000]	98.1% { 89.3% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1111503	(5.10 , N/A) (N/A , 0.00 , N/A)	3461.0	N/A	1.9131 [2.0000]	95.7% { 102.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 833662	(6.52 , N/A) (N/A , 0.00 , N/A)	3063.1	N/A	2.0047 [2.0000]	100.2% { 104.1% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1614520	(7.78 , N/A) (N/A , 0.00 , N/A)	1104.4	N/A	1.9469 [2.0000]	97.3% { 102.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 213772	(4.92 , N/A) (N/A , 0.00 , N/A)	660.7	N/A	4.0193 [4.0000]	100.5% { 108.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 277817	(6.19 , N/A) (N/A , 0.00 , N/A)	1302.8	N/A	3.9350 [4.0000]	98.4% { 104.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 350838	(7.36 , N/A) (N/A , 0.00 , N/A)	2330.4	N/A	4.0367 [4.0000]	100.9% { 107.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2682259	(9.75 , N/A) (N/A , 0.00 , N/A)	4571.8	N/A	1.9117 [2.0000]	95.6% { 98.3% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 670530	(10.40 , N/A) (N/A , 0.00 , N/A)	2574.5	N/A	2.1070 [2.0000]	105.4% { 110.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (7)
Acquired: 2023/04/07 - 13:55

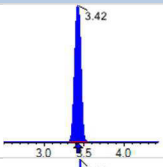
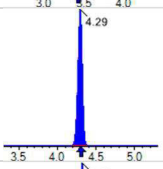
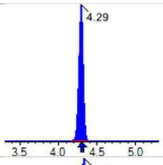
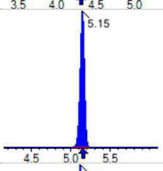
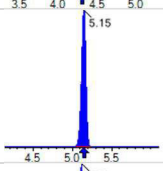
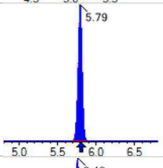
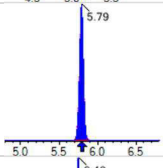
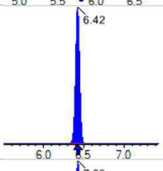
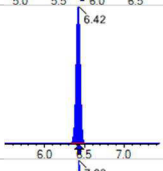
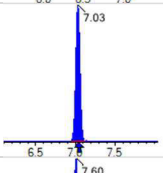
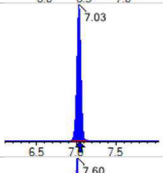
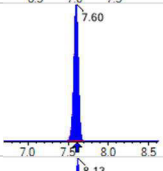
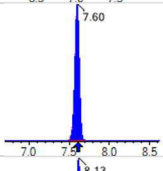
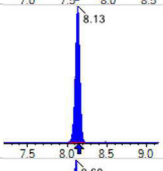
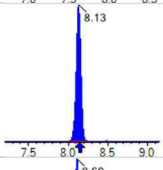
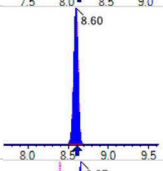
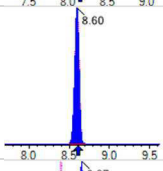
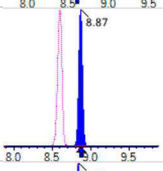
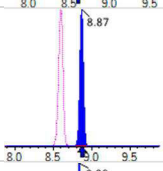
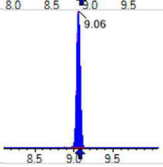
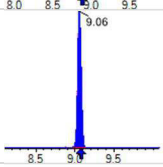
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 511945	(10.58 , N/A) (N/A , 0.00 , N/A)	3359.7	N/A	1.9648 [2.0000]	98.2% { 98.3% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 679362	(7.74 , N/A) (N/A , 0.00 , N/A)	2130.9	N/A	3.9042 [4.0000]	97.6% { 103.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 605026	(8.00 , N/A) (N/A , 0.00 , N/A)	121191.3	N/A	4.2339 [4.0000]	105.8% { 112.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1949866	(10.34 , N/A) (N/A , 0.00 , N/A)	1673.3	N/A	19.0715 [20.0000]	95.4% { 99.3% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2657298	(10.52 , N/A) (N/A , 0.00 , N/A)	1814.8	N/A	19.6419 [20.0000]	98.2% { 102.2% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1021004	(5.40 , N/A) (N/A , 0.00 , N/A)	2694.4	N/A	8.2061 [8.0000]	102.6% { 99.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (8)
Acquired: 2023/04/07 - 14:08

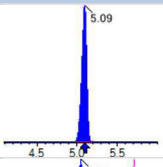
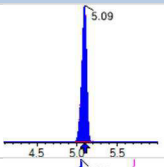
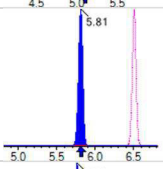
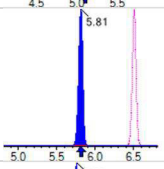
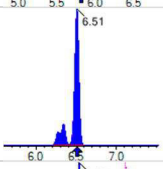
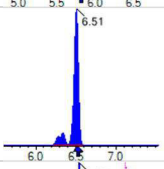
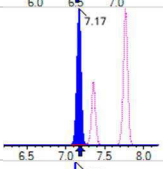
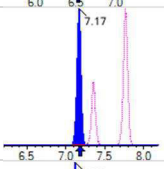
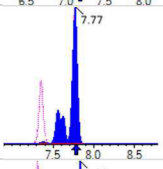
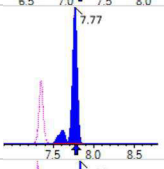
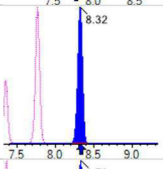
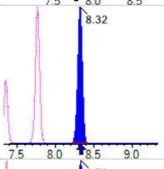
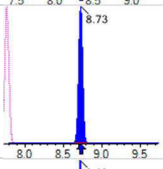
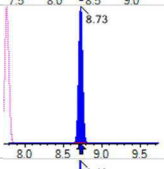
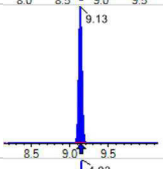
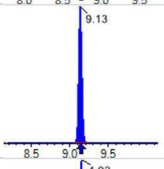
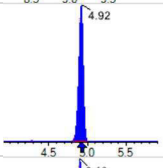
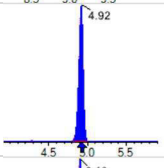
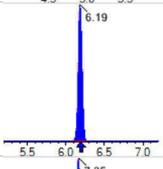
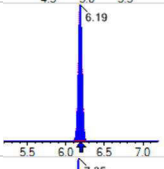
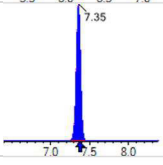
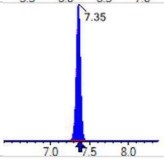
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 15599390	(3.42 , 1.00) (0.00 , N/A , 0.0)	187.1	N/A 0.0 0.0	207.5854	N/A			
PFPeA	(263.0 / 219.0) 16828799 (263.0 / 69.0) 189772	(4.29 , 1.00) (0.00 , N/A , 0.0)	7985.4 2112.8	0.0113 91.5 91.5	99.5891	N/A			
PFHxA	(313.0 / 269.0) 11078769 (313.0 / 119.0) 1033038	(5.15 , 1.00) (0.00 , N/A , 0.0)	6461.6 14440.5	0.0932 92.3 92.3	48.1840	N/A			
PFHpA	(363.0 / 319.0) 9699593 (363.0 / 169.0) 3020270	(5.79 , 1.00) (0.00 , N/A , 0.0)	12321.6 2396048.7	0.3114 104.9 104.9	50.7702	N/A			
PFOA	(413.0 / 369.0) 14044804 (413.0 / 169.0) 4396067	(6.42 , 1.00) (0.00 , N/A , 0.0)	7466.7 17106.4	0.3130 93.0 93.0	46.9316	N/A			
PFNA	(463.0 / 419.0) 12259620 (463.0 / 169.0) 2683636	(7.03 , 1.00) (0.00 , N/A , 0.0)	14825.8 1974578.2	0.2189 97.3 97.3	51.7363	N/A			
PFDA	(513.0 / 469.0) 14702262 (513.0 / 169.0) 1616940	(7.60 , 1.00) (0.00 , N/A , 0.0)	5746.6 3636.4	0.1100 91.3 91.3	47.5564	N/A			
PFUnA	(563.0 / 519.0) 12720580 (563.0 / 169.0) 1408135	(8.13 , 1.00) (0.00 , N/A , 0.0)	4373.7 5698.4	0.1107 107.2 107.2	47.4891	N/A			
PFDoA	(613.0 / 569.0) 12186034 (613.0 / 169.0) 1859893	(8.60 , 1.00) (0.00 , N/A , -0.1)	4452.8 4425.3	0.1526 102.1 102.1	49.8246	N/A			
PFTrDA	(663.0 / 619.0) 9498083 (663.0 / 169.0) 2468531	(8.87 , 1.03) (N/A , -0.01 , 0.0)	4636.0 3273.0	0.2599 101.4 101.4	41.9441	N/A			
PFTeDA	(713.0 / 669.0) 11676314 (713.0 / 169.0) 2214122	(9.06 , 1.00) (0.00 , N/A , 0.0)	4580.6 2396.9	0.1896 95.1 95.1	47.8751	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (8)
Acquired: 2023/04/07 - 14:08

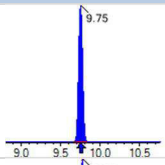
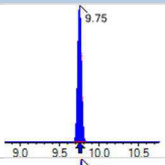
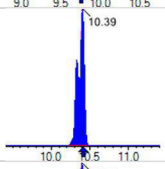
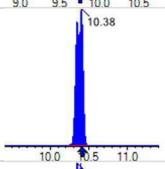
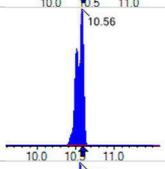
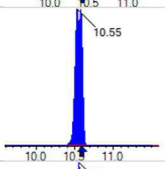
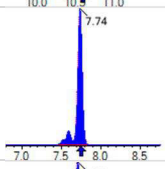
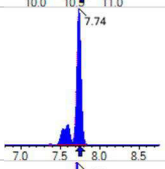
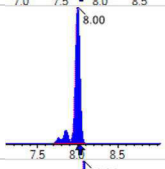
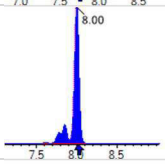
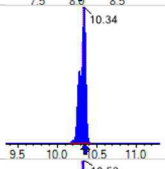
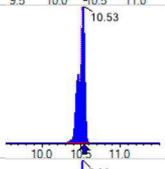
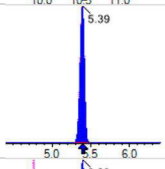
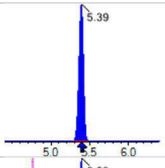
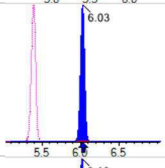
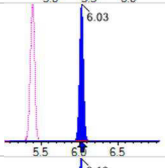
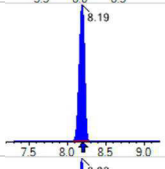
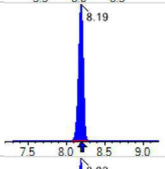
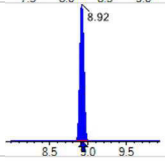
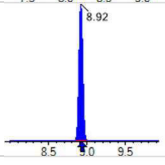
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 14946971 (299.0 / 99.0) 9507818	(5.09 , 1.00) (0.00 , N/A , 0.0)	6196.6 7158.5	0.6361 97.0 97.0	43.1221	N/A			
PFPeS	(349.0 / 80.0) 27979537 (349.0 / 99.0) 10448204	(5.81 , 0.89) (N/A , 0.00 , -0.1)	14797.7 306670.7	0.3734 109.9 109.9	40.8440	N/A			
PFHxS	(399.0 / 80.0) 26543216 (399.0 / 99.0) 9692750	(6.51 , 1.00) (0.00 , N/A , 0.1)	5835.4 36624.9	0.3652 102.0 102.0	47.2726	N/A			
PFHpS	(449.0 / 80.0) 27879625 (449.0 / 99.0) 8194590	(7.17 , 0.92) (N/A , -0.01 , 0.0)	13549.8 97357.3	0.2939 104.5 104.5	44.2569	N/A			
PFOS	(499.0 / 80.0) 37197635 (499.0 / 99.0) 8923938	(7.77 , 1.00) (0.00 , N/A , 0.0)	10329.5 311206.9	0.2399 110.5 110.5	43.3110	N/A			
PFNS	(549.0 / 80.0) 35913504 (549.0 / 99.0) 9093815	(8.32 , 1.07) (N/A , -0.01 , 0.1)	11185.3 13609.7	0.2532 99.5 99.5	47.4348	N/A			
PFDS	(599.0 / 80.0) 39707069 (599.0 / 99.0) 10407303	(8.73 , 1.12) (N/A , -0.01 , 0.0)	12452.6 11550.4	0.2621 109.6 109.6	43.2981	N/A			
PFDoS	(699.0 / 80.0) 32943252 (699.0 / 99.0) 8535984	(9.13 , 1.18) (N/A , -0.01 , 0.0)	6064.6 5086.7	0.2591 115.7 115.7	44.5762	N/A			
4:2FTS	(327.0 / 307.0) 27447016 (327.0 / 81.0) 17212458	(4.92 , 1.00) (0.00 , N/A , 0.0)	5845.9 4195.8	0.6271 104.0 104.0	163.4748	N/A			
6:2FTS	(427.0 / 407.0) 19398364 (427.0 / 81.0) 14473198	(6.19 , 1.00) (0.00 , N/A , 0.0)	4023.6 5707.2	0.7461 105.2 105.2	160.4455	N/A			
8:2FTS	(527.0 / 507.0) 22107200 (527.0 / 81.0) 16634991	(7.35 , 1.00) (0.00 , N/A , 0.0)	5619.5 5248.9	0.7525 98.4 98.4	159.2370	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (8)
Acquired: 2023/04/07 - 14:08

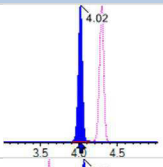
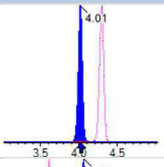
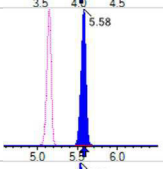
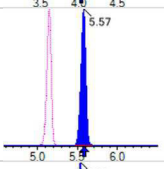
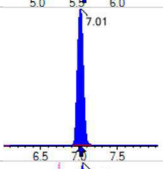
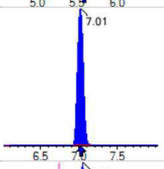
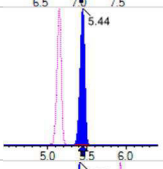
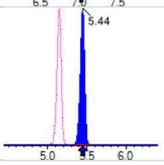
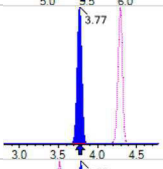
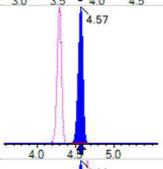
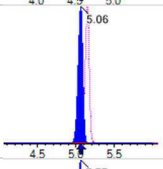
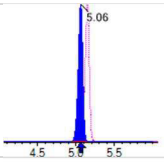
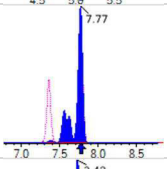
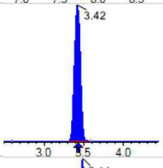
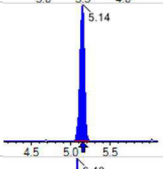
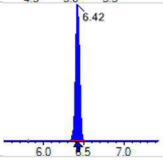
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 44630791 (498.0 / 478.0) 1312216	(9.75 , 1.00) (0.00 , N/A , 0.1)	5554.8 3676.1	0.0294 120.4 120.4	42.2595	N/A			
NMeFOSA	(512.0 / 219.0) 44025150 (512.0 / 169.0) 37650479	(10.39 , 1.00) (-0.01 , N/A , 0.9)	5845.8 5055.9	0.8552 100.7 100.7	153.4951	N/A			
NEtFOSA	(526.0 / 219.0) 49900734 (526.0 / 169.0) 58759131	(10.56 , 1.00) (-0.01 , N/A , 0.5)	17902.7 17124.8	1.1775 93.5 93.5	190.8758	N/A			
NMeFOSAA	(570.0 / 419.0) 6757220 (570.0 / 483.0) 3241891	(7.74 , 1.00) (0.00 , N/A , 0.1)	4042.9 718.4	0.4798 93.3 93.3	50.7265	N/A			
NEtFOSAA	(584.0 / 419.0) 6556423 (584.0 / 526.0) 3684115	(8.00 , 1.00) (0.01 , N/A , -0.1)	3507.1 3772.2	0.5619 91.9 91.9	52.8395	N/A			
NMeFOSE	(616.0 / 59.0) 20175253	(10.34 , 1.00) (0.01 , N/A , 0.0)	4781.3	N/A 0.0 0.0	209.2682	N/A			
NEtFOSE	(630.0 / 59.0) 25092502	(10.53 , 1.00) (0.01 , N/A , 0.0)	1233.5	N/A 0.0 0.0	199.7919	N/A			
HFPO-DA	(285.0 / 169.0) 10794302 (285.0 / 185.0) 28076283	(5.39 , 1.00) (0.00 , N/A , 0.0)	3525.3 4970.7	2.6010 88.7 88.7	93.6348	N/A			
ADONA	(377.0 / 85.0) 31727885 (377.0 / 251.0) 3906574	(6.03 , 1.12) (N/A , 0.00 , 0.0)	6240.2 4249.6	0.1231 118.7 118.7	75.2843	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 81940107 (533.0 / 353.0) 33062518	(8.19 , 1.52) (N/A , -0.01 , 0.0)	5481.0 5016.8	0.4035 125.1 125.1	65.5833	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 56749065 (633.0 / 453.0) 22753460	(8.92 , 1.65) (N/A , -0.01 , 0.0)	5293.6 4101.3	0.4009 117.5 117.5	68.9282	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (8)
Acquired: 2023/04/07 - 14:08

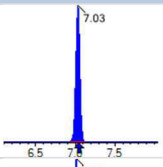
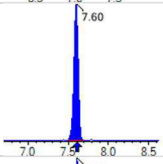
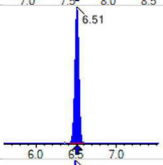
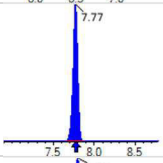
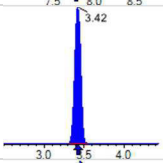
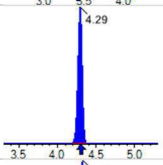
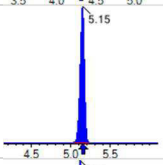
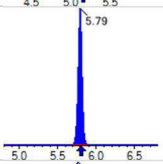
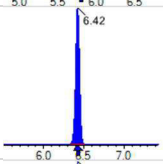
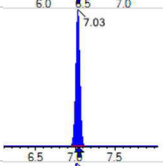
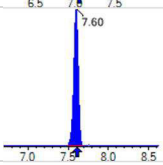
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 1657351 (241.0 / 117.0) 2530702	(4.02 , 0.94) (N/A , 0.00 , 0.0)	2344.2 2806.3	1.5270 99.2 99.2	229.2730	N/A			
5:3FTCA	(341.0 / 236.7) 8998775 (341.0 / 217.0) 15394399	(5.58 , 1.08) (N/A , 0.00 , 0.1)	2394.3 2734.9	1.7107 91.4 91.4	226.1973	N/A			
7:3FTCA	(441.0 / 317.0) 15829017 (441.0 / 337.0) 13429923	(7.01 , 1.36) (N/A , -0.01 , 0.0)	2311.4 2355.7	0.8484 103.0 103.0	218.4814	N/A			
PFEESA	(315.0 / 135.0) 22165191 (315.0 / 83.0) 5365601	(5.44 , 1.06) (N/A , 0.00 , 0.0)	5564.7 3807.0	0.2421 101.2 101.2	73.4459	N/A			
PFMPA	(229.0 / 85.0) 3577985	(3.77 , 0.88) (N/A , 0.00 , 0.0)	6567.1	N/A 0.0 0.0	94.8896	N/A			
PFMBA	(279.0 / 85.0) 11491588	(4.57 , 1.06) (N/A , 0.00 , 0.0)	5560.8	N/A 0.0 0.0	97.3816	N/A			
NFDHA	(295.0 / 201.0) 10245632 (295.0 / 85.0) 10272542	(5.06 , 0.98) (N/A , 0.00 , 0.0)	3704.7 4510.8	1.0026 102.7 102.7	88.3042	N/A			
TDCA	(499.0 / 80.0) 33847298	(7.77 , 1.00) (N/A , -0.01 , 0.0)	68190.7	N/A 0.0 0.0	46.8862	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 79960	(3.42 , N/A) (N/A , 0.00 , N/A)	991.0	N/A	0.7014 [1.0000]	70.1% { 74.6% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 122845	(5.14 , N/A) (N/A , -0.01 , N/A)	3587.3	N/A	0.8902 [1.0000]	89.0% { 106.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 281450	(6.42 , N/A) (N/A , 0.00 , N/A)	1261.5	N/A	0.9061 [1.0000]	90.6% { 101.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (8)
Acquired: 2023/04/07 - 14:08

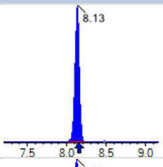
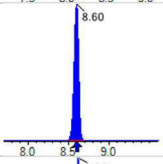
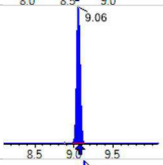
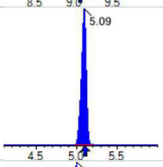
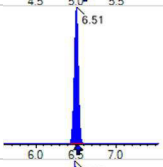
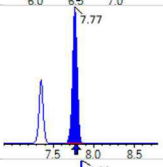
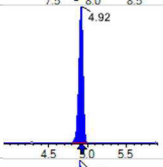
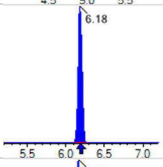
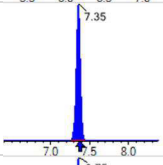
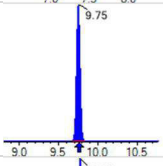
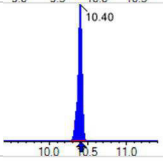
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 281452	(7.03 , N/A) (N/A , -0.01 , N/A)	48566.1	N/A	0.9547 [1.0000]	95.5% { 103.1% }			
13C2_PFDA_IIS	(515.0 / 470.1) 285719	(7.60 , N/A) (N/A , -0.01 , N/A)	1427.1	N/A	0.9217 [1.0000]	92.2% { 104.2% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 441596	(6.51 , N/A) (N/A , 0.00 , N/A)	1409.4	N/A	0.9844 [1.0000]	98.4% { 104.9% }			
13C4_PFOS_IIS	(503.0 / 79.9) 592259	(7.77 , N/A) (N/A , -0.01 , N/A)	1621.6	N/A	0.8511 [1.0000]	85.1% { 97.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 691502	(3.42 , N/A) (N/A , 0.00 , N/A)	3654.9	N/A	8.0638 [8.0000]	100.8% { 73.2% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 719401	(4.29 , N/A) (N/A , 0.00 , N/A)	3056.9	N/A	3.7093 [4.0000]	92.7% { 86.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 477783	(5.15 , N/A) (N/A , 0.00 , N/A)	4985.5	N/A	2.0328 [2.0000]	101.6% { 98.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 445402	(5.79 , N/A) (N/A , -0.01 , N/A)	73326.1	N/A	1.8924 [2.0000]	94.6% { 89.2% }			
13C8_PFOA_EIS	(421.0 / 376.0) 602609	(6.42 , N/A) (N/A , -0.01 , N/A)	2563.3	N/A	2.0799 [2.0000]	104.0% { 107.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 262232	(7.03 , N/A) (N/A , -0.01 , N/A)	8906.0	N/A	0.9564 [1.0000]	95.6% { 97.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 312160	(7.60 , N/A) (N/A , -0.01 , N/A)	2063.4	N/A	1.0002 [1.0000]	100.0% { 94.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (8)
Acquired: 2023/04/07 - 14:08

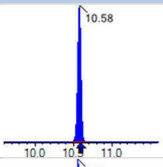
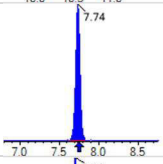
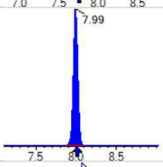
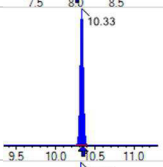
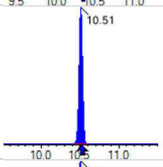
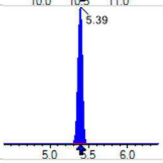
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 298977	(8.13 , N/A) (N/A , -0.01 , N/A)	4077.8	N/A	0.9937 [1.0000]	99.4% { 94.2% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 281446	(8.60 , N/A) (N/A , -0.01 , N/A)	1715.7	N/A	1.0344 [1.0000]	103.4% { 105.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 271990	(9.06 , N/A) (N/A , -0.01 , N/A)	1651.6	N/A	1.0437 [1.0000]	104.4% { 96.6% }			
13C3_PFBS_EIS	(302.0 / 80.0) 970839	(5.09 , N/A) (N/A , 0.00 , N/A)	2671.5	N/A	1.6833 [2.0000]	84.2% { 89.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 766383	(6.51 , N/A) (N/A , -0.01 , N/A)	2420.7	N/A	1.8564 [2.0000]	92.8% { 95.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1510153	(7.77 , N/A) (N/A , -0.01 , N/A)	724.8	N/A	2.0945 [2.0000]	104.7% { 95.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 218870	(4.92 , N/A) (N/A , -0.01 , N/A)	1270.0	N/A	4.1455 [4.0000]	103.6% { 111.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 313619	(6.18 , N/A) (N/A , -0.01 , N/A)	3300.8	N/A	4.4748 [4.0000]	111.9% { 118.3% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 392294	(7.35 , N/A) (N/A , -0.01 , N/A)	4053.0	N/A	4.5470 [4.0000]	113.7% { 119.8% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2487321	(9.75 , N/A) (N/A , -0.01 , N/A)	3651.6	N/A	2.0389 [2.0000]	101.9% { 91.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 699925	(10.40 , N/A) (N/A , -0.01 , N/A)	2242.6	N/A	2.5296 [2.0000]	126.5% { 115.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (8)
Acquired: 2023/04/07 - 14:08

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) 482648	(10.58 , N/A) (N/A , -0.01 , N/A)	3171.3	N/A	2.1305 [2.0000]	106.5% { 92.6% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 644686	(7.74 , N/A) (N/A , -0.01 , N/A)	1711.4	N/A	4.2611 [4.0000]	106.5% { 98.3% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 563870	(7.99 , N/A) (N/A , -0.01 , N/A)	18253.8	N/A	4.5384 [4.0000]	113.5% { 104.4% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1858303	(10.33 , N/A) (N/A , -0.01 , N/A)	1845.4	N/A	20.9048 [20.0000]	104.5% { 94.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2566601	(10.51 , N/A) (N/A , -0.01 , N/A)	1371.5	N/A	21.8198 [20.0000]	109.1% { 98.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 968377	(5.39 , N/A) (N/A , 0.00 , N/A)	2274.1	N/A	8.0291 [8.0000]	100.4% { 94.2% }			

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2313008
Laboratory ID: SC01216-SCV1
Sequence: SC01216
Standard ID: 23C0366

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	8.00	8.48	5.9	30.00
PFPEA	4.00	4.22	5.5	30.00
PFHXA	2.00	2.08	4.2	30.00
PFHPA	2.00	2.04	1.8	30.00
PFOA	2.00	2.14	6.9	30.00
PFNA	2.00	2.32	15.9	30.00
PFDA	2.00	2.17	8.5	30.00
PFUnA	2.00	2.14	6.9	30.00
PFDOA	2.00	2.17	8.7	30.00
PFTRDA	2.00	2.34	16.8	30.00
PFTEDA	2.00	2.25	12.6	30.00
PFBS	1.77	1.97	11.4	30.00
PFPES	1.88	2.04	8.5	30.00
PFHXS	1.83	1.93	5.7	30.00
PFHPS	1.91	1.93	1.0	30.00
PFOS	1.86	1.81	-2.6	30.00
PFNS	1.92	1.98	3.0	30.00
PFDS	1.93	2.04	5.8	30.00
PFDOS	1.94	2.05	5.8	30.00
4:2FTS	7.50	7.80	4.0	30.00
6:2FTS	7.60	9.19	20.9	30.00
8:2FTS	7.68	8.30	8.1	30.00
PFOSA	2.00	2.26	12.8	30.00
NMeFOSA	8.00	8.76	9.6	30.00
NEtFOSA	8.00	7.21	-9.9	30.00
NMeFOSAA	2.00	2.00	-0.03	30.00
NEtFOSAA	2.00	1.97	-1.4	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2313008
Laboratory ID: SC01216-SCV1
Sequence: SC01216
Standard ID: 23C0366

NMeFOSE	8.00	8.73	9.1	30.00
NEtFOSE	8.00	9.19	14.9	30.00
HFPO-DA	4.00	4.28	7.0	30.00
ADONA	3.78	3.99	5.7	30.00
PFEESA	3.56	4.03	13.3	30.00
PFMPA	4.00	4.32	8.1	30.00
PFMBA	4.00	4.28	7.1	30.00
NFDHA	4.00	4.65	16.2	30.00
9CL-PF3ONS	3.74	4.19	12.1	30.00
11CL-PF3OUDS	3.78	4.17	10.2	30.00
3:3FTCA	8.00	8.98	12.3	30.00
5:3FTCA	8.00	8.00	0.05	30.00
7:3FTCA	8.00	8.06	0.8	30.00
13C4-PFBA	8.00	7.53	-5.9	30.00
13C5-PFPEA	4.00	3.67	-8.3	30.00
13C5-PFHXA	2.00	1.79	-10.6	30.00
13C4-PFHPA	2.00	1.89	-5.3	30.00
13C8-PFOA	2.00	1.83	-8.3	30.00
13C9-PFNA	1.00	0.905	-9.5	30.00
13C6-PFDA	1.00	0.952	-4.8	30.00
13C7-PFUnA	1.00	0.919	-8.1	30.00
13C2-PFDOA	1.00	0.900	-10.0	30.00
13C2-PFTEDA	1.00	0.905	-9.5	30.00
13C3-PFBS	2.00	1.95	-2.7	30.00
13C3-PFHXS	2.00	2.00	-0.1	30.00
13C8-PFOS	2.00	1.90	-5.2	30.00
13C2-4:2FTS	4.00	3.91	-2.2	30.00
13C2-6:2FTS	4.00	3.56	-11.0	30.00
13C2-8:2FTS	4.00	3.65	-8.9	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2313008
Laboratory ID: SC01216-SCV1
Sequence: SC01216
Standard ID: 23C0366

13C8-PFOSA	2.00	1.84	-7.9	30.00
D3-NMEFOSA	2.00	1.85	-7.4	30.00
D5-NETFOSA	2.00	1.98	-1.1	30.00
D3-NMEFOSAA	4.00	3.93	-1.7	30.00
D5-NETFOSAA	4.00	3.56	-11.0	30.00
D7-NMEFOSE	20.0	20.2	1.1	30.00
D9-NETFOSE	20.0	18.1	-9.3	30.00
13C3-HFPO-DA	8.00	7.84	-2.0	30.00

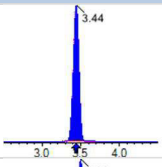
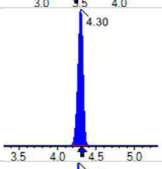
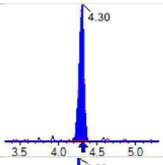
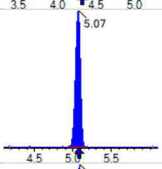
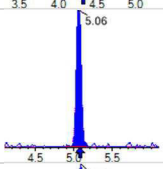
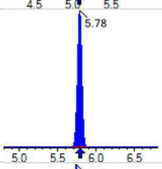
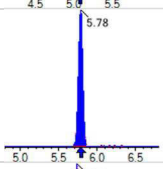
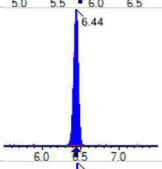
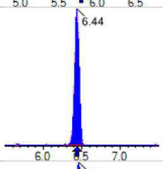
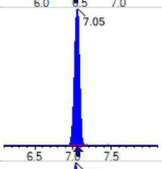
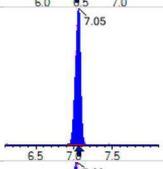
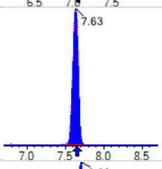
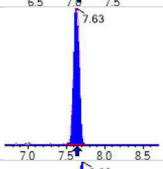
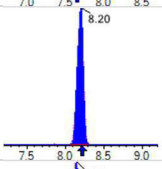
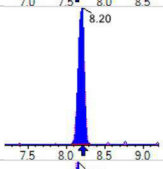
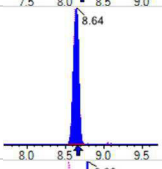
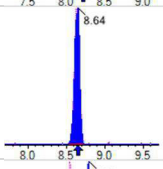
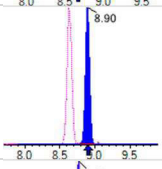
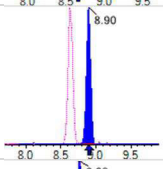
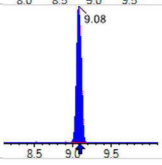
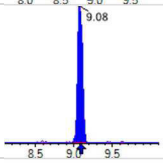
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01216-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28B (10)
Acquired: 2023/03/28 - 21:45

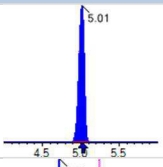
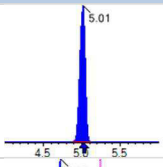
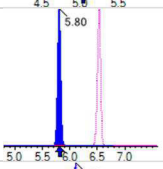
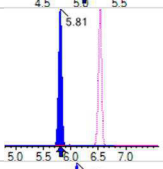
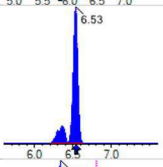
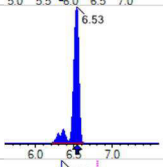
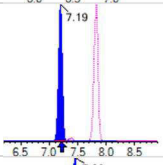
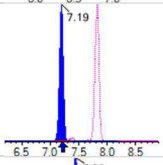
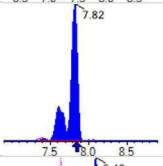
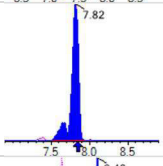
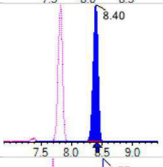
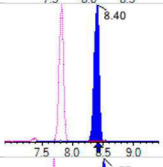
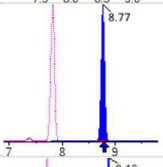
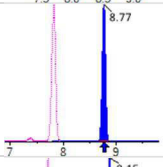
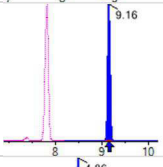
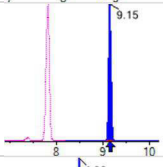
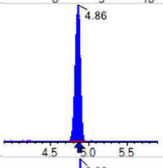
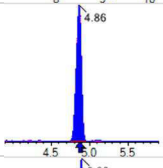
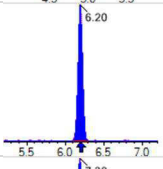
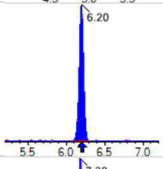
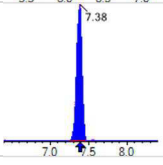
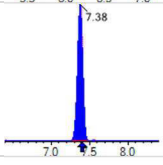
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 1430781	(3.44 , 1.00) (0.00 , N/A , 0.0)	174.6	N/A 0.0 0.0	8.4753	N/A			
PFPeA	(263.0 / 219.0) 1218034 (263.0 / 69.0) 14001	(4.30 , 1.00) (0.00 , N/A , -0.1)	2647.9 314.8	0.0115 108.6 108.6	4.2182	N/A			
PFHxA	(313.0 / 269.0) 667815 (313.0 / 119.0) 69359	(5.07 , 1.00) (0.00 , N/A , 0.3)	1448.5 539.0	0.1039 100.8 100.8	2.0838	N/A			
PFHpA	(363.0 / 319.0) 579951 (363.0 / 169.0) 163907	(5.78 , 1.00) (0.00 , N/A , 0.1)	4765.0 37117.9	0.2826 89.1 89.1	2.0359	N/A			
PFOA	(413.0 / 369.0) 779078 (413.0 / 169.0) 266353	(6.44 , 1.00) (0.00 , N/A , 0.1)	1308.4 9637.8	0.3419 99.8 99.8	2.1386	N/A			
PFNA	(463.0 / 419.0) 672361 (463.0 / 169.0) 141579	(7.05 , 1.00) (0.00 , N/A , -0.2)	5046.0 4414691.9	0.2106 96.4 96.4	2.3175	N/A			
PFDA	(513.0 / 469.0) 853235 (513.0 / 169.0) 82113	(7.63 , 1.00) (0.00 , N/A , 0.2)	1147.1 1100.9	0.0962 87.8 87.8	2.1698	N/A			
PFUnA	(563.0 / 519.0) 715397 (563.0 / 169.0) 85647	(8.20 , 1.00) (0.00 , N/A , 0.1)	1239.1 1213.1	0.1197 95.7 95.7	2.1381	N/A			
PFDoA	(613.0 / 569.0) 702548 (613.0 / 169.0) 105523	(8.64 , 1.00) (0.00 , N/A , 0.0)	1369.6 3187.7	0.1502 96.0 96.0	2.1748	N/A			
PFTrDA	(663.0 / 619.0) 672397 (663.0 / 169.0) 153517	(8.90 , 1.03) (N/A , -0.01 , 0.0)	2118.7 1369.4	0.2283 96.9 96.9	2.3362	N/A			
PFTeDA	(713.0 / 669.0) 737913 (713.0 / 169.0) 136038	(9.08 , 1.00) (0.00 , N/A , -0.1)	1551.7 670.5	0.1844 95.0 95.0	2.2517	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01216-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28B (10)
Acquired: 2023/03/28 - 21:45

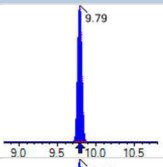
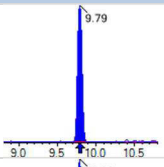
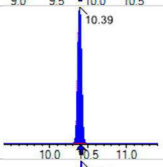
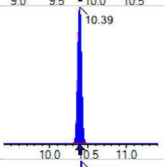
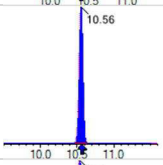
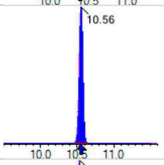
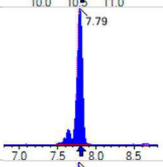
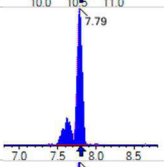
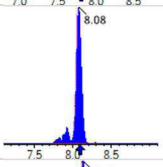
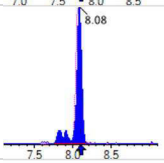
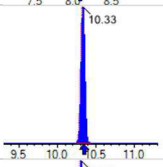
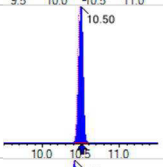
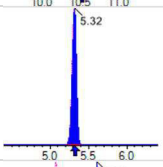
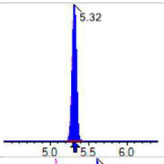
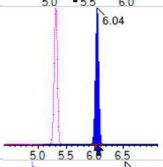
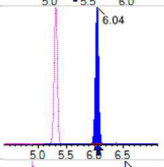
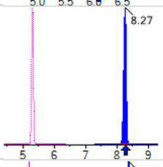
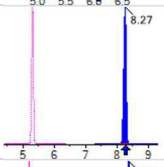
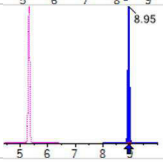
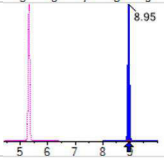
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 1145961 (299.0 / 99.0) 725270	(5.01 , 1.00) (0.00 , N/A , 0.1)	18080204.0 4496.4	0.6329 94.5 94.5	1.9720	N/A			
PFPeS	(349.0 / 80.0) 1806648 (349.0 / 99.0) 650901	(5.80 , 0.89) (N/A , -0.01 , -0.2)	241401.7 3823.9	0.3603 101.9 101.9	2.0395	N/A			
PFHxS	(399.0 / 80.0) 1587534 (399.0 / 99.0) 529483	(6.53 , 1.00) (0.00 , N/A , 0.1)	107729.8 11345019.3	0.3335 98.8 98.8	1.9342	N/A			
PFHpS	(449.0 / 80.0) 1637445 (449.0 / 99.0) 425976	(7.19 , 0.92) (N/A , -0.01 , 0.0)	6748.1 6829.5	0.2601 90.4 90.4	1.9284	N/A			
PFOS	(499.0 / 80.0) 1920132 (499.0 / 99.0) 426393	(7.82 , 1.00) (0.00 , N/A , 0.0)	1120.1 508.7	0.2221 97.4 97.4	1.8114	N/A			
PFNS	(549.0 / 80.0) 2112898 (549.0 / 99.0) 506479	(8.40 , 1.07) (N/A , -0.01 , 0.0)	145068.7 3827.5	0.2397 103.2 103.2	1.9784	N/A			
PFDS	(599.0 / 80.0) 2444966 (599.0 / 99.0) 546114	(8.77 , 1.12) (N/A , -0.01 , 0.0)	9311.3 4408.7	0.2234 102.3 102.3	2.0425	N/A			
PFDoS	(699.0 / 80.0) 2029826 (699.0 / 99.0) 476684	(9.16 , 1.17) (N/A , -0.01 , 0.1)	3438.7 1522.6	0.2348 104.6 104.6	2.0526	N/A			
4:2FTS	(327.0 / 307.0) 2117893 (327.0 / 81.0) 1295948	(4.86 , 1.00) (0.00 , N/A , -0.1)	2665.4 948.1	0.6119 98.7 98.7	7.7993	N/A			
6:2FTS	(427.0 / 407.0) 1280628 (427.0 / 81.0) 960772	(6.20 , 1.00) (0.00 , N/A , 0.0)	2089.3 1360.6	0.7502 104.8 104.8	9.1903	N/A			
8:2FTS	(527.0 / 507.0) 1304178 (527.0 / 81.0) 951340	(7.38 , 1.00) (0.00 , N/A , 0.1)	1915.6 2028.6	0.7295 102.6 102.6	8.3022	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01216-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28B (10)
Acquired: 2023/03/28 - 21:45

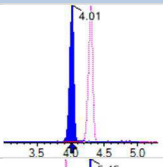
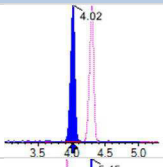
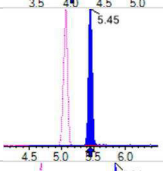
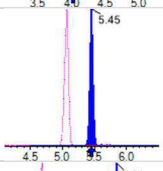
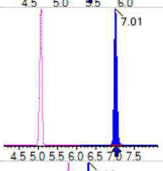
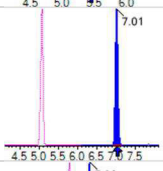
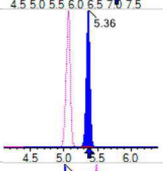
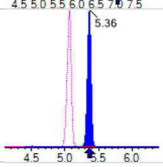
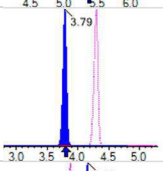
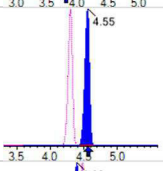
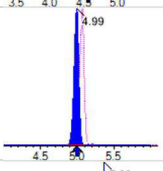
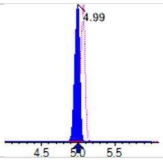
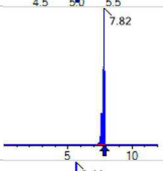
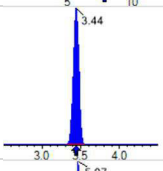
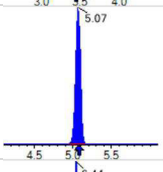
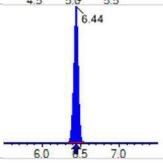
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 3181655 (498.0 / 478.0) 70071	(9.79 , 1.00) (0.00 , N/A , 0.0)	3346.3 533.1	0.0220 96.5 96.5	2.2561	N/A			
NMeFOSA	(512.0 / 219.0) 2816692 (512.0 / 169.0) 2055639	(10.39 , 1.00) (0.00 , N/A , 0.0)	7467.6 6604.6	0.7298 84.8 84.8	8.7650	N/A			
NEtFOSA	(526.0 / 219.0) 2645265 (526.0 / 169.0) 2873206	(10.56 , 1.00) (0.01 , N/A , 0.0)	7897.4 5093.1	1.0862 86.0 86.0	7.2060	N/A			
NMeFOSAA	(570.0 / 419.0) 389447 (570.0 / 483.0) 169589	(7.79 , 1.00) (0.01 , N/A , 0.3)	1236.8 356.0	0.4355 89.1 89.1	1.9995	N/A			
NEtFOSAA	(584.0 / 419.0) 297067 (584.0 / 526.0) 190296	(8.08 , 1.00) (0.01 , N/A , -0.4)	38945.5 1467.3	0.6406 109.2 109.2	1.9724	N/A			
NMeFOSE	(616.0 / 59.0) 1210353	(10.33 , 1.00) (0.01 , N/A , 0.0)	2096.1	N/A 0.0 0.0	8.7303	N/A			
NEtFOSE	(630.0 / 59.0) 1393452	(10.50 , 1.00) (0.01 , N/A , 0.0)	2343.4	N/A 0.0 0.0	9.1941	N/A			
HFPO-DA	(285.0 / 169.0) 679008 (285.0 / 185.0) 1755993	(5.32 , 1.00) (0.00 , N/A , 0.1)	1475.8 2125.6	2.5861 91.6 91.6	4.2796	N/A			
ADONA	(377.0 / 85.0) 2449198 (377.0 / 251.0) 252638	(6.04 , 1.14) (N/A , -0.01 , 0.0)	3129.5 2858.1	0.1032 99.0 99.0	3.9942	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 7000121 (533.0 / 353.0) 1988939	(8.27 , 1.56) (N/A , -0.01 , 0.0)	4364.1 3145.3	0.2841 93.4 93.4	4.1908	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 4470712 (633.0 / 453.0) 1493317	(8.95 , 1.68) (N/A , -0.01 , 0.1)	5056.6 3611.8	0.3340 98.4 98.4	4.1668	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01216-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28B (10)
Acquired: 2023/03/28 - 21:45

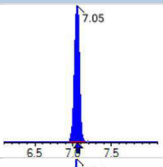
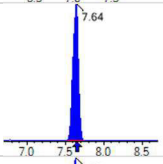
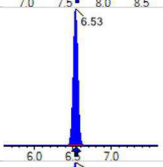
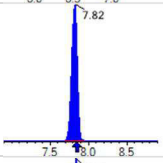
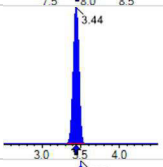
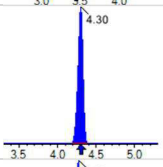
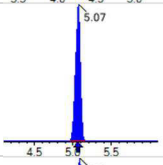
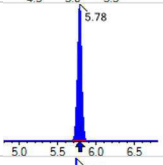
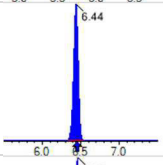
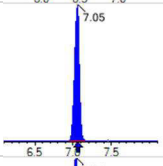
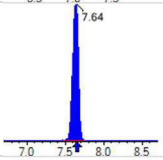
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 70758 (241.0 / 117.0) 150713	(4.01 , 0.93) (N/A , 0.00 , 0.0)	592.4 642.0	2.1300 94.1 94.1	8.9817	N/A			
5:3FTCA	(341.0 / 236.7) 450352 (341.0 / 217.0) 784387	(5.45 , 1.08) (N/A , -0.01 , -0.1)	937.9 1022.1	1.7417 104.5 104.5	8.0041	N/A			
7:3FTCA	(441.0 / 317.0) 723636 (441.0 / 337.0) 671928	(7.01 , 1.38) (N/A , -0.01 , -0.2)	997.1 1122.9	0.9285 111.8 111.8	8.0631	N/A			
PFEESA	(315.0 / 135.0) 1563461 (315.0 / 83.0) 419137	(5.36 , 1.06) (N/A , -0.01 , -0.1)	4111.1 1108.9	0.2681 106.0 106.0	4.0319	N/A			
PFMPA	(229.0 / 85.0) 290010	(3.79 , 0.88) (N/A , 0.00 , 0.0)	2257.5	N/A 0.0 0.0	4.3229	N/A			
PFMBA	(279.0 / 85.0) 965415	(4.55 , 1.06) (N/A , 0.00 , 0.0)	2508.7	N/A 0.0 0.0	4.2828	N/A			
NFDHA	(295.0 / 201.0) 887141 (295.0 / 85.0) 896714	(4.99 , 0.99) (N/A , 0.00 , 0.1)	2141.5 1923.8	1.0108 101.4 101.4	4.6480	N/A			
TDCA	(499.0 / 80.0) 1909971	(7.82 , 1.00) (N/A , -0.01 , 0.0)	80313.7	N/A 0.0 0.0	1.9324	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 196552	(3.44 , N/A) (N/A , -0.01 , N/A)	1529.5	N/A	1.0115 [1.0000]	101.2% { 99.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 280978	(5.07 , N/A) (N/A , 0.00 , N/A)	1373.1	N/A	1.0460 [1.0000]	104.6% { 107.2% }			
13C4_PFOA_IIS	(417.0 / 372.0) 455621	(6.44 , N/A) (N/A , -0.01 , N/A)	5995.0	N/A	1.0131 [1.0000]	101.3% { 98.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01216-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28B (10)
Acquired: 2023/03/28 - 21:45

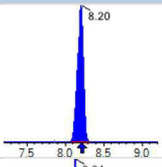
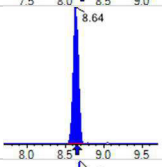
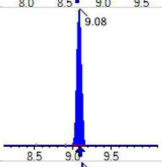
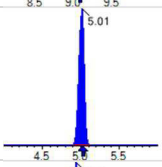
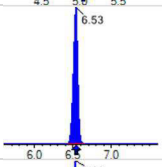
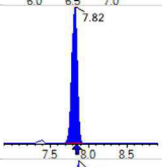
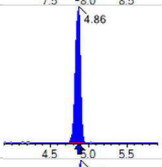
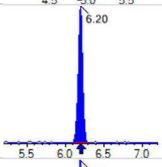
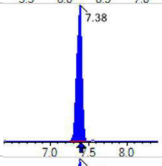
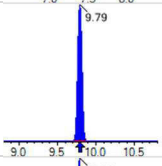
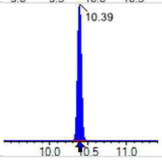
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 397328	(7.05 , N/A) (N/A , -0.01 , N/A)	1463.4	N/A	0.9878 [1.0000]	98.8% { 99.8% }			
13C2_PFDA_IIS	(515.0 / 470.1) 404906	(7.64 , N/A) (N/A , -0.01 , N/A)	3804.5	N/A	1.0000 [1.0000]	100.0% { 91.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 613028	(6.53 , N/A) (N/A , -0.01 , N/A)	2486.1	N/A	0.9540 [1.0000]	95.4% { 96.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 846371	(7.82 , N/A) (N/A , -0.01 , N/A)	1954.6	N/A	1.0716 [1.0000]	107.2% { 103.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1545721	(3.44 , N/A) (N/A , -0.01 , N/A)	5925.1	N/A	7.5285 [8.0000]	94.1% { 93.6% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1212363	(4.30 , N/A) (N/A , 0.00 , N/A)	3145.1	N/A	3.6688 [4.0000]	91.7% { 93.6% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 718545	(5.07 , N/A) (N/A , 0.00 , N/A)	2491.8	N/A	1.7881 [2.0000]	89.4% { 95.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 632626	(5.78 , N/A) (N/A , -0.01 , N/A)	2591.1	N/A	1.8934 [2.0000]	94.7% { 97.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 764743	(6.44 , N/A) (N/A , -0.01 , N/A)	2966.6	N/A	1.8340 [2.0000]	91.7% { 93.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 329291	(7.05 , N/A) (N/A , -0.01 , N/A)	2716.1	N/A	0.9052 [1.0000]	90.5% { 91.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 414766	(7.64 , N/A) (N/A , -0.01 , N/A)	2090.9	N/A	0.9522 [1.0000]	95.2% { 94.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01216-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28B (10)
Acquired: 2023/03/28 - 21:45

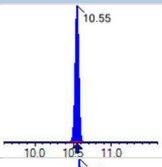
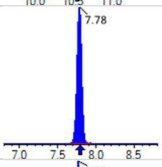
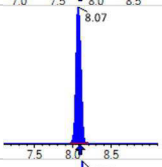
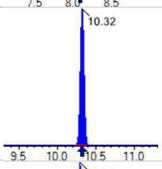
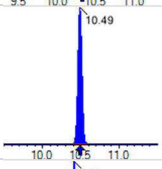
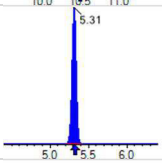
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 416729	(8.20 , N/A) (N/A , -0.01 , N/A)	1547.5	N/A	0.9186 [1.0000]	91.9% { 91.8% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 385905	(8.64 , N/A) (N/A , -0.01 , N/A)	1252.0	N/A	0.9004 [1.0000]	90.0% { 95.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 380728	(9.08 , N/A) (N/A , -0.01 , N/A)	1832.0	N/A	0.9045 [1.0000]	90.5% { 90.3% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1760055	(5.01 , N/A) (N/A , 0.00 , N/A)	2888.7	N/A	1.9450 [2.0000]	97.3% { 91.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1025350	(6.53 , N/A) (N/A , -0.01 , N/A)	2671.1	N/A	1.9979 [2.0000]	99.9% { 95.1% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1897175	(7.82 , N/A) (N/A , -0.01 , N/A)	1523.0	N/A	1.8963 [2.0000]	94.8% { 101.5% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 358853	(4.86 , N/A) (N/A , 0.00 , N/A)	802.8	N/A	3.9119 [4.0000]	97.8% { 92.7% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 379482	(6.20 , N/A) (N/A , -0.01 , N/A)	620.3	N/A	3.5588 [4.0000]	89.0% { 82.9% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 438555	(7.38 , N/A) (N/A , -0.01 , N/A)	1267.0	N/A	3.6455 [4.0000]	91.1% { 90.5% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3389876	(9.79 , N/A) (N/A , -0.01 , N/A)	6929.0	N/A	1.8420 [2.0000]	92.1% { 95.3% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 755850	(10.39 , N/A) (N/A , -0.01 , N/A)	2924.2	N/A	1.8517 [2.0000]	92.6% { 95.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01216-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28B (10)
Acquired: 2023/03/28 - 21:45

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) 699460	(10.55 , N/A) (N/A , -0.01 , N/A)	3169.7	N/A	1.9775 [2.0000]	98.9% { 99.2% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 887714	(7.78 , N/A) (N/A , -0.01 , N/A)	2261.1	N/A	3.9316 [4.0000]	98.3% { 106.1% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 637839	(8.07 , N/A) (N/A , -0.01 , N/A)	7245945.2	N/A	3.5606 [4.0000]	89.0% { 92.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2539588	(10.32 , N/A) (N/A , -0.01 , N/A)	2648.6	N/A	20.2145 [20.0000]	101.1% { 103.3% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3004231	(10.49 , N/A) (N/A , -0.01 , N/A)	1668.3	N/A	18.1363 [20.0000]	90.7% { 87.2% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1502643	(5.31 , N/A) (N/A , -0.01 , N/A)	3570.7	N/A	7.8377 [8.0000]	98.0% { 99.2% }			

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315001
Laboratory ID: SC01366-SCV1
Sequence: SC01366
Standard ID: 23C0366

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	8.00	8.71	8.9	30.00
PFPEA	4.00	4.40	10.0	30.00
PFHXA	2.00	2.06	3.1	30.00
PFHPA	2.00	2.38	18.8	30.00
PFOA	2.00	2.12	6.1	30.00
PFNA	2.00	2.01	0.4	30.00
PFDA	2.00	1.96	-1.8	30.00
PFUnA	2.00	1.96	-2.2	30.00
PFDOA	2.00	2.31	15.6	30.00
PFTRDA	2.00	2.26	13.1	30.00
PFTEDA	2.00	2.34	16.8	30.00
PFBS	1.77	1.97	11.1	30.00
PFPES	1.88	2.05	9.1	30.00
PFHXS	1.83	1.93	5.5	30.00
PFHPS	1.91	2.04	6.8	30.00
PFOS	1.86	1.86	-0.1	30.00
PFNS	1.92	2.06	7.4	30.00
PFDS	1.93	2.15	11.6	30.00
PFDOS	1.94	2.08	7.1	30.00
4:2FTS	7.50	7.62	1.6	30.00
6:2FTS	7.60	8.60	13.2	30.00
8:2FTS	7.68	8.09	5.3	30.00
PFOSA	2.00	2.18	9.2	30.00
NMeFOSA	8.00	9.10	13.7	30.00
NEtFOSA	8.00	7.46	-6.8	30.00
NMeFOSAA	2.00	2.19	9.5	30.00
NEtFOSAA	2.00	2.25	12.7	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315001
Laboratory ID: SC01366-SCV1
Sequence: SC01366
Standard ID: 23C0366

NMeFOSE	8.00	9.16	14.5	30.00
NEtFOSE	8.00	8.96	12.0	30.00
HFPO-DA	4.00	4.60	14.9	30.00
ADONA	3.78	4.80	27.0	30.00
PFEESA	3.56	4.20	17.9	30.00
PFMPA	4.00	4.56	14.0	30.00
PFMBA	4.00	4.75	18.7	30.00
NFDHA	4.00	4.62	15.5	30.00
9CL-PF3ONS	3.74	4.33	15.8	30.00
11CL-PF3OUDS	3.78	4.39	16.2	30.00
3:3FTCA	8.00	8.33	4.1	30.00
5:3FTCA	8.00	9.29	16.1	30.00
7:3FTCA	8.00	8.39	4.8	30.00
13C4-PFBA	8.00	7.50	-6.2	30.00
13C5-PFPEA	4.00	3.98	-0.6	30.00
13C5-PFHXA	2.00	2.01	0.5	30.00
13C4-PFHPA	2.00	1.95	-2.4	30.00
13C8-PFOA	2.00	1.78	-11.1	30.00
13C9-PFNA	1.00	1.05	4.9	30.00
13C6-PFDA	1.00	0.987	-1.3	30.00
13C7-PFUnA	1.00	1.08	8.0	30.00
13C2-PFDOA	1.00	0.976	-2.4	30.00
13C2-PFTEDA	1.00	0.916	-8.4	30.00
13C3-PFBS	2.00	1.88	-5.9	30.00
13C3-PFHXS	2.00	1.86	-7.2	30.00
13C8-PFOS	2.00	1.77	-11.7	30.00
13C2-4:2FTS	4.00	4.19	4.7	30.00
13C2-6:2FTS	4.00	3.66	-8.4	30.00
13C2-8:2FTS	4.00	3.48	-13.0	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315001
Laboratory ID: SC01366-SCV1
Sequence: SC01366
Standard ID: 23C0366

13C8-PFOSA	2.00	1.72	-13.8	30.00
D3-NMEFOSA	2.00	1.69	-15.5	30.00
D5-NETFOSA	2.00	1.88	-6.1	30.00
D3-NMEFOSAA	4.00	3.66	-8.5	30.00
D5-NETFOSAA	4.00	3.30	-17.4	30.00
D7-NMEFOSE	20.0	17.4	-13.0	30.00
D9-NETFOSE	20.0	18.5	-7.6	30.00
13C3-HFPO-DA	8.00	7.88	-1.5	30.00

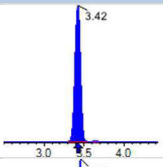
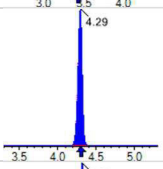
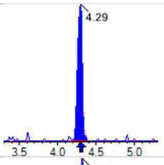
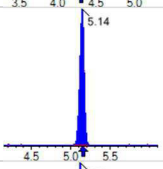
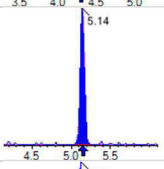
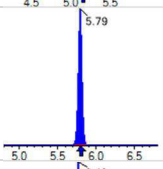
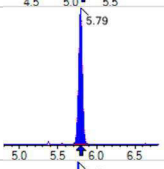
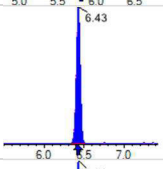
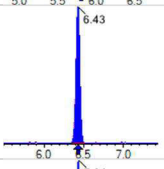
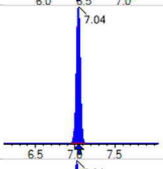
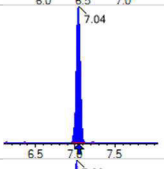
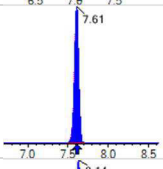
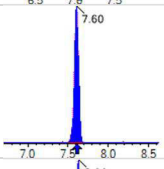
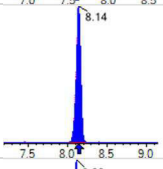
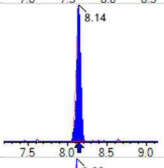
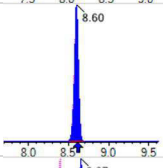
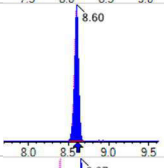
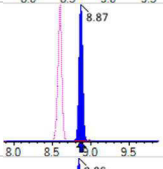
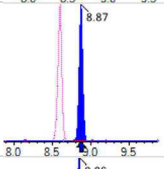
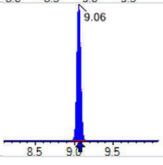
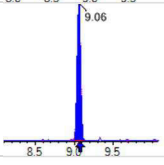
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (10)
Acquired: 2023/04/07 - 15:51

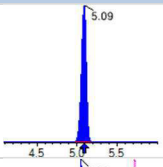
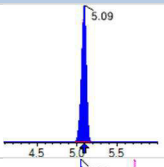
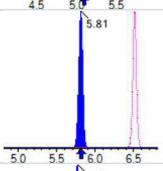
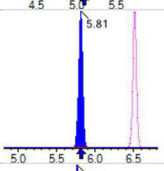
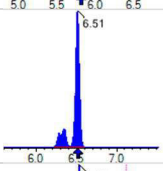
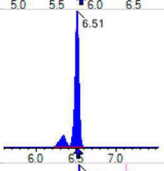
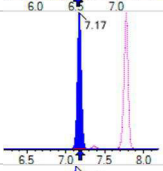
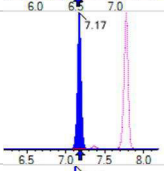
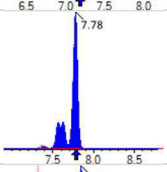
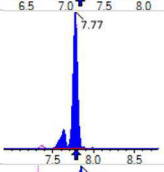
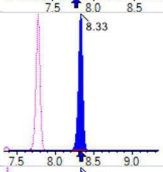
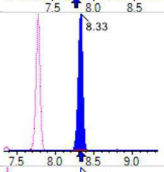
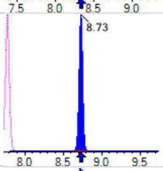
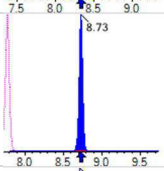
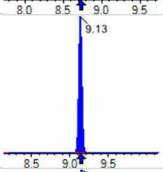
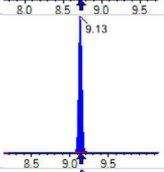
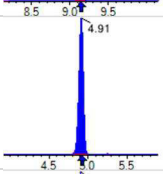
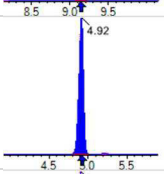
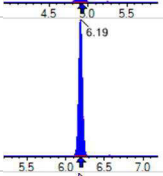
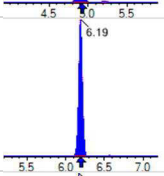
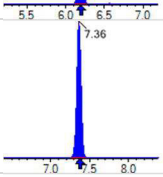
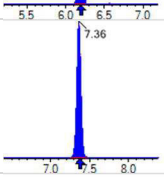
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 974387	(3.42 , 1.00) (0.00 , N/A , 0.0)	207.1	N/A 0.0 0.0	8.7107	N/A			
PFPeA	(263.0 / 219.0) 864381 (263.0 / 69.0) 11187	(4.29 , 1.00) (0.00 , N/A , 0.2)	2399.6 222.7	0.0129 105.1 105.1	4.4003	N/A			
PFHxA	(313.0 / 269.0) 507916 (313.0 / 119.0) 50251	(5.14 , 1.00) (0.00 , N/A , 0.2)	1543.9 3348.5	0.0989 97.9 97.9	2.0618	N/A			
PFHpA	(363.0 / 319.0) 507612 (363.0 / 169.0) 153481	(5.79 , 1.00) (0.00 , N/A , 0.0)	17472.9 7554.6	0.3024 101.9 101.9	2.3760	N/A			
PFOA	(413.0 / 369.0) 635762 (413.0 / 169.0) 214976	(6.43 , 1.00) (0.00 , N/A , 0.1)	1341.1 9545.0	0.3381 100.5 100.5	2.1217	N/A			
PFNA	(463.0 / 419.0) 565319 (463.0 / 169.0) 130545	(7.04 , 1.00) (0.00 , N/A , 0.1)	5446.9 3579.8	0.2309 102.7 102.7	2.0071	N/A			
PFDA	(513.0 / 469.0) 653192 (513.0 / 169.0) 84467	(7.61 , 1.00) (0.00 , N/A , 0.1)	1443.2 150387.6	0.1293 107.4 107.4	1.9640	N/A			
PFUnA	(563.0 / 519.0) 620603 (563.0 / 169.0) 81958	(8.14 , 1.00) (0.00 , N/A , 0.0)	1434.4 1047.7	0.1321 127.9 127.9	1.9553	N/A			
PFDoA	(613.0 / 569.0) 581986 (613.0 / 169.0) 96646	(8.60 , 1.00) (0.00 , N/A , -0.1)	1909.9 1175.5	0.1661 111.1 111.1	2.3128	N/A			
PFTrDA	(663.0 / 619.0) 527154 (663.0 / 169.0) 139194	(8.87 , 1.03) (N/A , -0.01 , -0.1)	1946.0 1086.6	0.2640 103.0 103.0	2.2626	N/A			
PFTeDA	(713.0 / 669.0) 545061 (713.0 / 169.0) 114112	(9.06 , 1.00) (0.00 , N/A , 0.0)	1744.1 727.0	0.2094 105.0 105.0	2.3355	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (10)
Acquired: 2023/04/07 - 15:51

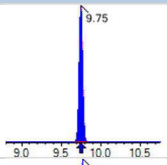
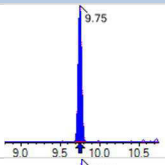
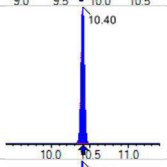
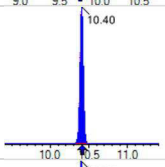
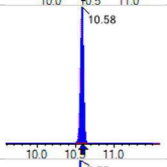
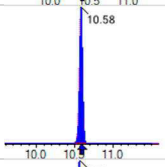
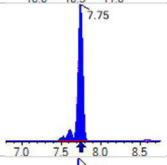
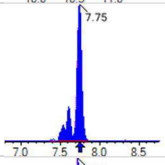
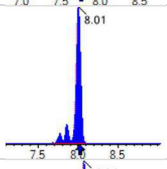
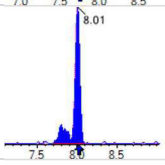
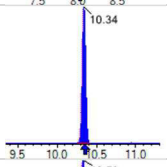
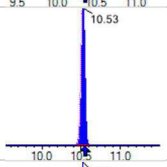
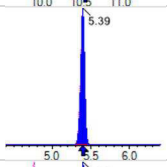
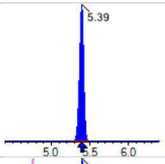
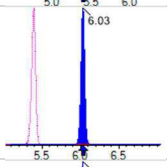
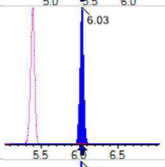
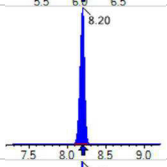
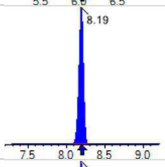
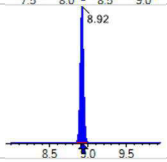
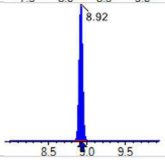
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 806702 (299.0 / 99.0) 515984	(5.09 , 1.00) (0.00 , N/A , -0.1)	57642.7 3342.8	0.6396 97.5 97.5	1.9667	N/A			
PFPeS	(349.0 / 80.0) 1487348 (349.0 / 99.0) 546876	(5.81 , 0.89) (N/A , 0.00 , 0.0)	1904499.1 17314.3	0.3677 108.2 108.2	2.0516	N/A			
PFHxS	(399.0 / 80.0) 1147292 (399.0 / 99.0) 409371	(6.51 , 1.00) (0.00 , N/A , 0.0)	1686.2 7848.3	0.3568 99.7 99.7	1.9307	N/A			
PFHpS	(449.0 / 80.0) 1439766 (449.0 / 99.0) 406390	(7.17 , 0.92) (N/A , 0.00 , 0.0)	19427297.5 12657854.1	0.2823 100.4 100.4	2.0396	N/A			
PFOS	(499.0 / 80.0) 1787589 (499.0 / 99.0) 421486	(7.78 , 1.00) (0.00 , N/A , 0.1)	110095.4 3973.0	0.2358 108.6 108.6	1.8574	N/A			
PFNS	(549.0 / 80.0) 1750061 (549.0 / 99.0) 456211	(8.33 , 1.07) (N/A , -0.01 , 0.1)	25143.3 81121.7	0.2607 102.4 102.4	2.0627	N/A			
PFDS	(599.0 / 80.0) 2212460 (599.0 / 99.0) 504836	(8.73 , 1.12) (N/A , -0.01 , 0.0)	5734.3 6429.8	0.2282 95.4 95.4	2.1529	N/A			
PFDoS	(699.0 / 80.0) 1721070 (699.0 / 99.0) 401335	(9.13 , 1.17) (N/A , -0.01 , 0.1)	3259.1 1436.0	0.2332 104.1 104.1	2.0782	N/A			
4:2FTS	(327.0 / 307.0) 1369029 (327.0 / 81.0) 786889	(4.91 , 1.00) (0.00 , N/A , -0.1)	2353.3 1790.9	0.5748 95.3 95.3	7.6217	N/A			
6:2FTS	(427.0 / 407.0) 901610 (427.0 / 81.0) 641806	(6.19 , 1.00) (0.00 , N/A , 0.0)	3947.1 2839.2	0.7118 100.3 100.3	8.6038	N/A			
8:2FTS	(527.0 / 507.0) 910191 (527.0 / 81.0) 679896	(7.36 , 1.00) (0.00 , N/A , 0.1)	3182.7 3825.1	0.7470 97.7 97.7	8.0889	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (10)
Acquired: 2023/04/07 - 15:51

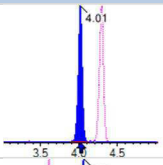
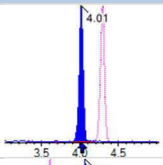
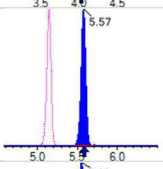
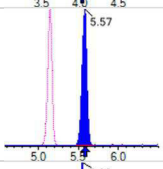
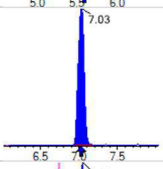
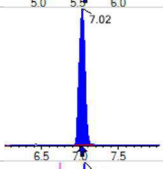
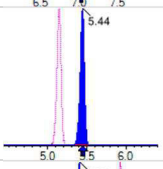
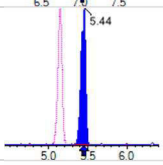
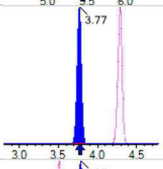
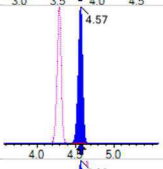
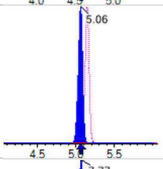
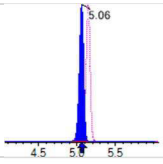
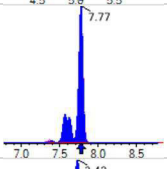
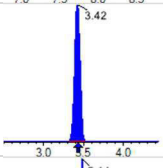
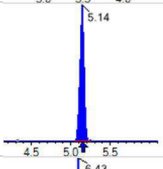
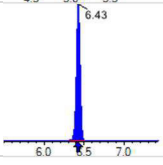
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 2592347 (498.0 / 478.0) 58387	(9.75 , 1.00) (0.00 , N/A , 0.0)	4509.6 770.9	0.0225 92.2 92.2	2.1848	N/A			
NMeFOSA	(512.0 / 219.0) 2316479 (512.0 / 169.0) 1683648	(10.40 , 1.00) (0.00 , N/A , 0.0)	8916.2 5515.1	0.7268 85.6 85.6	9.0960	N/A			
NEtFOSA	(526.0 / 219.0) 2282363 (526.0 / 169.0) 2344865	(10.58 , 1.00) (0.01 , N/A , 0.0)	7619.6 8829.3	1.0274 81.6 81.6	7.4566	N/A			
NMeFOSAA	(570.0 / 419.0) 332875 (570.0 / 483.0) 163075	(7.75 , 1.00) (0.00 , N/A , 0.1)	23833.8 276.1	0.4899 95.3 95.3	2.1895	N/A			
NEtFOSAA	(584.0 / 419.0) 270614 (584.0 / 526.0) 158082	(8.01 , 1.00) (0.01 , N/A , -0.1)	451.5 685.0	0.5842 95.6 95.6	2.2541	N/A			
NMeFOSE	(616.0 / 59.0) 976496	(10.34 , 1.00) (0.01 , N/A , 0.0)	1934.7	N/A 0.0 0.0	9.1607	N/A			
NEtFOSE	(630.0 / 59.0) 1266539	(10.53 , 1.00) (0.01 , N/A , 0.0)	1682.0	N/A 0.0 0.0	8.9615	N/A			
HFPO-DA	(285.0 / 169.0) 563567 (285.0 / 185.0) 1534676	(5.39 , 1.00) (0.00 , N/A , 0.0)	1702.6 2930.1	2.7231 92.9 92.9	4.5960	N/A			
ADONA	(377.0 / 85.0) 2152743 (377.0 / 251.0) 204197	(6.03 , 1.12) (N/A , 0.00 , 0.0)	3642.8 7925.4	0.0949 91.4 91.4	4.8022	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 5755614 (533.0 / 353.0) 1815685	(8.20 , 1.52) (N/A , 0.00 , 0.1)	3586.6 2539.0	0.3155 97.8 97.8	4.3309	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 3847923 (633.0 / 453.0) 1351492	(8.92 , 1.65) (N/A , -0.01 , 0.0)	3378.0 2831.4	0.3512 102.9 102.9	4.3939	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (10)
Acquired: 2023/04/07 - 15:51

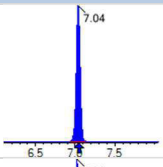
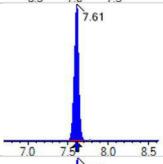
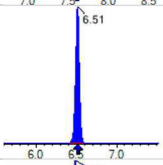
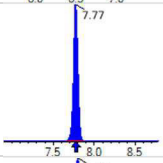
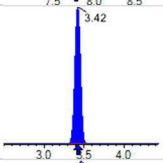
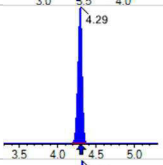
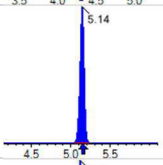
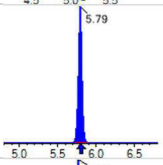
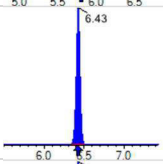
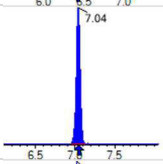
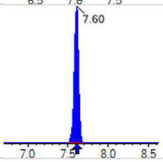
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 69980 (241.0 / 117.0) 106123	(4.01 , 0.94) (N/A , 0.00 , 0.1)	1278.6 633.9	1.5165 98.5 98.5	8.3277	N/A			
5:3FTCA	(341.0 / 236.7) 396011 (341.0 / 217.0) 617845	(5.57 , 1.08) (N/A , -0.01 , 0.0)	1327.7 985.5	1.5602 83.4 83.4	9.2910	N/A			
7:3FTCA	(441.0 / 317.0) 651016 (441.0 / 337.0) 541519	(7.03 , 1.37) (N/A , 0.00 , 0.1)	1149.6 1742.4	0.8318 101.0 101.0	8.3869	N/A			
PFEESA	(315.0 / 135.0) 1357379 (315.0 / 83.0) 281173	(5.44 , 1.06) (N/A , 0.00 , 0.0)	5161.4 646.9	0.2071 86.6 86.6	4.1980	N/A			
PFMPA	(229.0 / 85.0) 199875	(3.77 , 0.88) (N/A , 0.00 , 0.0)	3191.8	N/A 0.0 0.0	4.5599	N/A			
PFMBA	(279.0 / 85.0) 651283	(4.57 , 1.06) (N/A , -0.01 , 0.0)	3863.6	N/A 0.0 0.0	4.7477	N/A			
NFDHA	(295.0 / 201.0) 574450 (295.0 / 85.0) 568619	(5.06 , 0.98) (N/A , 0.00 , 0.0)	3850.6 3233.6	0.9898 101.4 101.4	4.6211	N/A			
TDCA	(499.0 / 80.0) 1668507	(7.77 , 1.00) (N/A , 0.00 , 0.0)	19655.9	N/A 0.0 0.0	2.0625	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 127910	(3.42 , N/A) (N/A , 0.00 , N/A)	1553.1	N/A	1.1220 [1.0000]	112.2% { 119.3% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 133161	(5.14 , N/A) (N/A , -0.01 , N/A)	19818.0	N/A	0.9649 [1.0000]	96.5% { 115.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 329554	(6.43 , N/A) (N/A , 0.00 , N/A)	2821.0	N/A	1.0610 [1.0000]	106.1% { 118.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (10)
Acquired: 2023/04/07 - 15:51

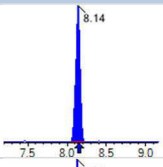
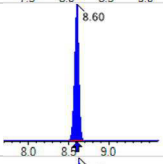
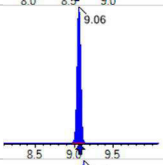
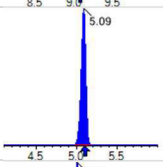
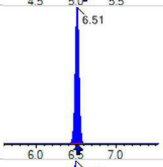
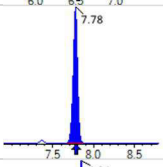
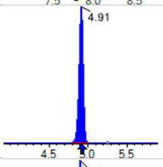
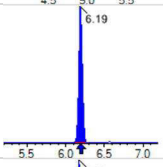
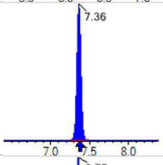
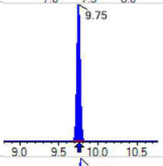
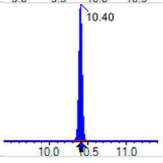
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 304916	(7.04 , N/A) (N/A , 0.00 , N/A)	3402.8	N/A	1.0343 [1.0000]	103.4% { 111.7% }			
13C2_PFDA_IIS	(515.0 / 470.1) 311572	(7.61 , N/A) (N/A , 0.00 , N/A)	2255.7	N/A	1.0051 [1.0000]	100.5% { 113.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 467501	(6.51 , N/A) (N/A , 0.00 , N/A)	3682.8	N/A	1.0422 [1.0000]	104.2% { 111.1% }			
13C4_PFOS_IIS	(503.0 / 79.9) 787042	(7.77 , N/A) (N/A , 0.00 , N/A)	2274.5	N/A	1.1309 [1.0000]	113.1% { 129.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1029345	(3.42 , N/A) (N/A , 0.00 , N/A)	4731.8	N/A	7.5037 [8.0000]	93.8% { 109.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 836286	(4.29 , N/A) (N/A , -0.01 , N/A)	2951.5	N/A	3.9780 [4.0000]	99.4% { 101.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 511894	(5.14 , N/A) (N/A , 0.00 , N/A)	3221.7	N/A	2.0092 [2.0000]	100.5% { 105.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 498081	(5.79 , N/A) (N/A , 0.00 , N/A)	2773.3	N/A	1.9523 [2.0000]	97.6% { 99.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 603381	(6.43 , N/A) (N/A , 0.00 , N/A)	12365.4	N/A	1.7786 [2.0000]	88.9% { 107.4% }			
13C9_PFNA_EIS	(472.0 / 427.0) 311694	(7.04 , N/A) (N/A , 0.00 , N/A)	10781.4	N/A	1.0493 [1.0000]	104.9% { 115.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 335812	(7.60 , N/A) (N/A , 0.00 , N/A)	291137.1	N/A	0.9867 [1.0000]	98.7% { 101.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (10)
Acquired: 2023/04/07 - 15:51

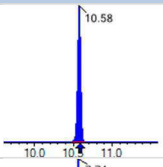
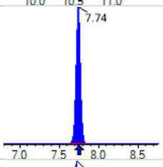
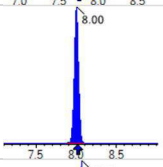
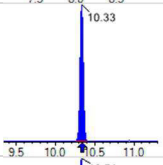
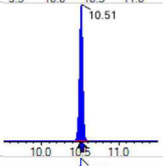
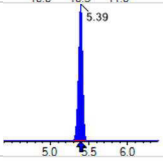
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 354265	(8.14 , N/A) (N/A , -0.01 , N/A)	1801.9	N/A	1.0798 [1.0000]	108.0% { 111.6% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 289570	(8.60 , N/A) (N/A , 0.00 , N/A)	3052.9	N/A	0.9760 [1.0000]	97.6% { 108.6% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 260269	(9.06 , N/A) (N/A , -0.01 , N/A)	1641.3	N/A	0.9159 [1.0000]	91.6% { 92.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1148846	(5.09 , N/A) (N/A , 0.00 , N/A)	2310.3	N/A	1.8815 [2.0000]	94.1% { 106.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 811056	(6.51 , N/A) (N/A , 0.00 , N/A)	2965.2	N/A	1.8558 [2.0000]	92.8% { 101.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1692266	(7.78 , N/A) (N/A , 0.00 , N/A)	1632.4	N/A	1.7662 [2.0000]	88.3% { 107.2% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 234154	(4.91 , N/A) (N/A , -0.01 , N/A)	1608.6	N/A	4.1892 [4.0000]	104.7% { 118.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 271826	(6.19 , N/A) (N/A , 0.00 , N/A)	1022.9	N/A	3.6636 [4.0000]	91.6% { 102.5% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 317954	(7.36 , N/A) (N/A , 0.00 , N/A)	4626.0	N/A	3.4811 [4.0000]	87.0% { 97.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2794537	(9.75 , N/A) (N/A , -0.01 , N/A)	4848.6	N/A	1.7238 [2.0000]	86.2% { 102.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 621475	(10.40 , N/A) (N/A , -0.01 , N/A)	2388.7	N/A	1.6902 [2.0000]	84.5% { 102.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (10)
Acquired: 2023/04/07 - 15:51

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) 565092	(10.58 , N/A) (N/A , -0.01 , N/A)	3278.7	N/A	1.8771 [2.0000]	93.9% { 108.5% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 735773	(7.74 , N/A) (N/A , 0.00 , N/A)	2324.3	N/A	3.6596 [4.0000]	91.5% { 112.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 545566	(8.00 , N/A) (N/A , 0.00 , N/A)	465073.6	N/A	3.3043 [4.0000]	82.6% { 101.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2054677	(10.33 , N/A) (N/A , -0.01 , N/A)	1586.7	N/A	17.3935 [20.0000]	87.0% { 104.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2888224	(10.51 , N/A) (N/A , -0.01 , N/A)	1625.5	N/A	18.4772 [20.0000]	92.4% { 111.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1030046	(5.39 , N/A) (N/A , 0.00 , N/A)	2326.0	N/A	7.8788 [8.0000]	98.5% { 100.2% }			

LOW-CONCENTRATION CALIBRATION VERIFICATION

Laboratory: **SDG:**

Client: **Project:**

Calibration: **Laboratory ID:**

Sequence: **Standard ID:**

ANALYTE	EXPECTED	FOUND	% DRIFT	QC LIMIT

* Values outside of QC limits

LOW-CONCENTRATION CALIBRATION VERIFICATION

Laboratory: **SDG:**

Client: **Project:**

Calibration: **Laboratory ID:**

Sequence: **Standard ID:**

ANALYTE	EXPECTED	FOUND	% DRIFT	QC LIMIT

* Values outside of QC limits

LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315001
Laboratory ID: SC01368-LCV1
Sequence: SC01368
Standard ID: 23C0358

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	0.400	0.445	11.2	30.00
PFPEA	0.200	0.228	13.8	30.00
PFHXA	0.100	0.0967	-3.3	30.00
PFHPA	0.100	0.0929	-7.1	30.00
PFOA	0.100	0.0916	-8.4	30.00
PFNA	0.100	0.0976	-2.4	30.00
PFDA	0.100	0.0943	-5.7	30.00
PFUnA	0.100	0.117	17.4	30.00
PFDOA	0.100	0.0990	-1.0	30.00
PFTRDA	0.100	0.125	25.2	30.00
PFTEDA	0.100	0.117	17.0	30.00
PFBS	0.0885	0.0918	3.7	30.00
PFPES	0.0940	0.110	16.6	30.00
PFHXS	0.0915	0.103	12.1	30.00
PFHPS	0.0955	0.0841	-12.0	30.00
PFOS	0.0930	0.0904	-2.8	30.00
PFNS	0.0960	0.0952	-0.9	30.00
PFDS	0.0965	0.0928	-3.8	30.00
PFDOS	0.0970	0.0986	1.6	30.00
4:2FTS	0.375	0.362	-3.5	30.00
6:2FTS	0.380	0.431	13.4	30.00
8:2FTS	0.384	0.439	14.4	30.00
PFOSA	0.100	0.102	1.6	30.00
NMeFOSA	0.400	0.457	14.1	30.00
NEtFOSA	0.400	0.427	6.9	30.00
NMeFOSAA	0.100	0.109	8.7	30.00
NEtFOSAA	0.100	0.0996	-0.4	30.00
NMeFOSE	0.400	0.445	11.3	30.00

LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling / 6069
Calibration: 2315001
Laboratory ID: SC01368-LCV1
Sequence: SC01368
Standard ID: 23C0358

NEtFOSE	0.400	0.388	-3.1	30.00
HFPO-DA	0.200	0.198	-0.9	30.00
ADONA	0.189	0.202	6.7	30.00
PFEESA	0.178	0.205	14.9	30.00
PFMPA	0.200	0.215	7.3	30.00
PFMBA	0.200	0.214	7.0	30.00
NFDHA	0.200	0.249	24.3	30.00
9CL-PF3ONS	0.187	0.206	10.3	30.00
11CL-PF3OUDS	0.189	0.195	3.1	30.00
3:3FTCA	0.400	0.478	19.6	30.00
5:3FTCA	0.400	0.508	27.0	30.00
7:3FTCA	0.400	0.388	-2.9	30.00

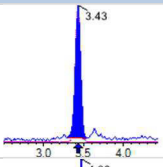
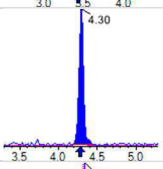
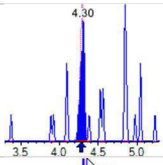
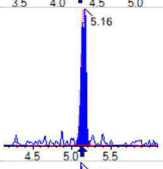
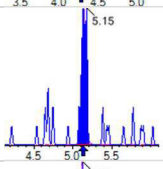
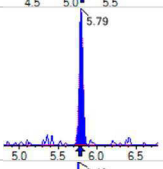
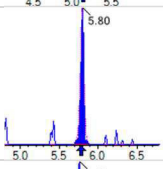
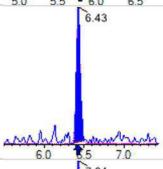
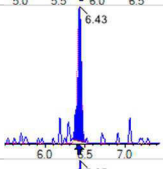
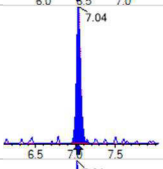
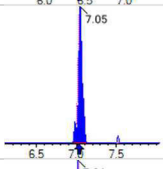
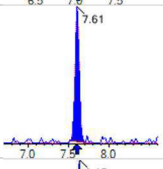
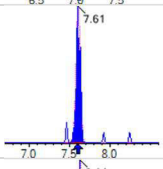
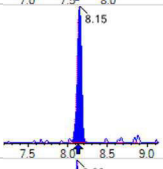
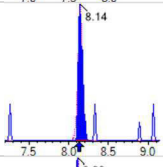
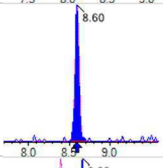
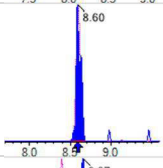
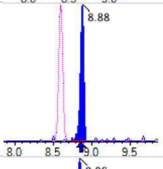
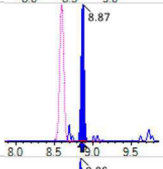
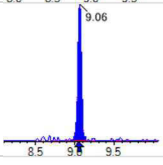
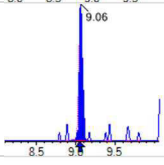
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (2)
Acquired: 2023/04/07 - 16:30

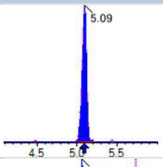
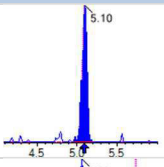
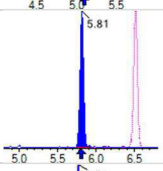
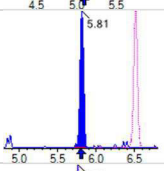
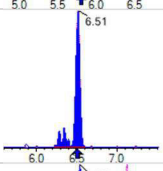
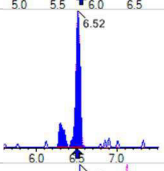
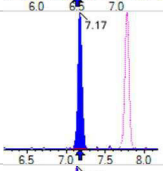
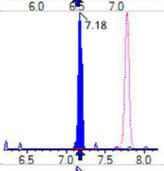
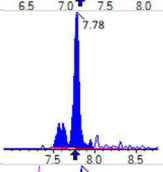
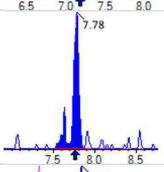
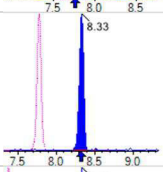
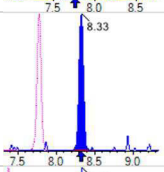
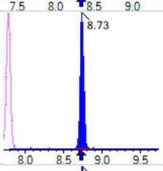
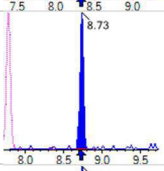
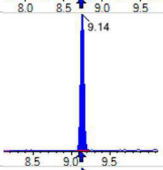
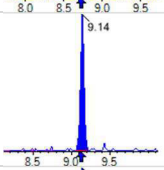
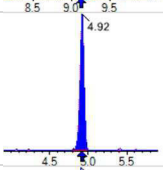
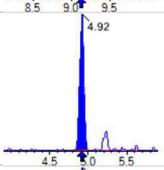
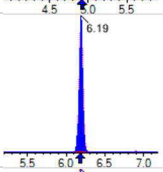
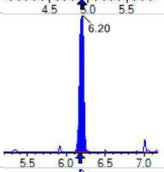
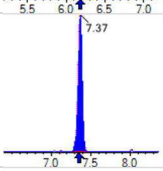
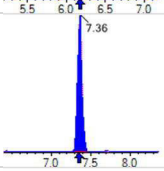
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 54363	(3.43 , 1.00) (0.00 , N/A , 0.0)	65.7	N/A 0.0 0.0	0.4448 [0.4000]	111.2%			
PFPeA	(263.0 / 219.0) 51364 (263.0 / 69.0) 642	(4.30 , 1.00) (0.00 , N/A , -0.4)	250.2 480.0	0.0125 101.5 101.7	0.2277 [0.2000]	113.8%			
PFHxA	(313.0 / 269.0) 25780 (313.0 / 119.0) 3757	(5.16 , 1.00) (0.01 , N/A , 0.3)	123.9 1002.4	0.1457 144.3 154.2	0.0967 [0.1000]	96.7%			IR2,
PFHpA	(363.0 / 319.0) 22695 (363.0 / 169.0) 10132	(5.79 , 1.00) (0.00 , N/A , -0.3)	578.4 599.2	0.4465 150.5 134.3	0.0929 [0.1000]	92.9%			IR2,
PFOA	(413.0 / 369.0) 30743 (413.0 / 169.0) 10662	(6.43 , 1.00) (0.00 , N/A , -0.4)	99.8 64.2	0.3468 103.1 108.6	0.0916 [0.1000]	91.6%			
PFNA	(463.0 / 419.0) 28502 (463.0 / 169.0) 7842	(7.04 , 1.00) (-0.01 , N/A , -0.7)	1477.8 2664.5	0.2751 122.4 129.4	0.0976 [0.1000]	97.6%			
PFDA	(513.0 / 469.0) 32885 (513.0 / 169.0) 5580	(7.61 , 1.00) (0.00 , N/A , -0.1)	121.0 78.1	0.1697 140.9 159.7	0.0943 [0.1000]	94.3%			IR2,
PFUnA	(563.0 / 519.0) 38461 (563.0 / 169.0) 3607	(8.15 , 1.00) (0.01 , N/A , 0.3)	187.0 1026.2	0.0938 90.8 76.0	0.1174 [0.1000]	117.4%			
PFDoA	(613.0 / 569.0) 26284 (613.0 / 169.0) 5295	(8.60 , 1.00) (0.00 , N/A , -0.2)	159.0 36218.8	0.2015 134.8 122.5	0.0990 [0.1000]	99.0%			
PFTrDA	(663.0 / 619.0) 30769 (663.0 / 169.0) 7467	(8.88 , 1.03) (N/A , 0.02 , 0.5)	225.7 185.2	0.2427 94.7 97.0	0.1252 [0.1000]	125.2%			
PFTeDA	(713.0 / 669.0) 32038 (713.0 / 169.0) 4202	(9.06 , 1.00) (0.00 , N/A , -0.1)	186.6 125.7	0.1312 65.8 60.5	0.1170 [0.1000]	117.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (2)
Acquired: 2023/04/07 - 16:30

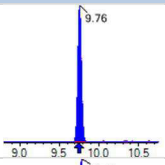
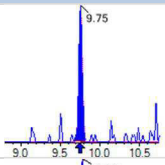
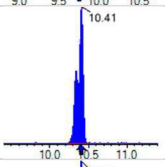
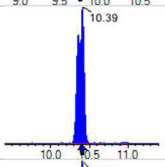
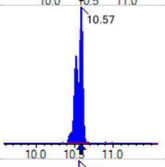
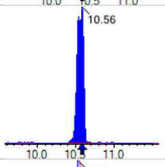
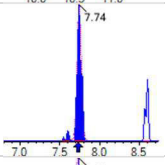
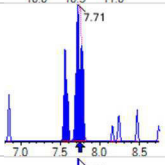
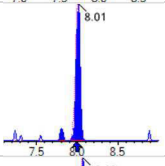
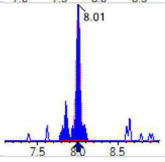
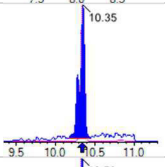
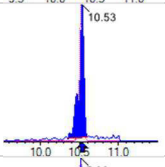
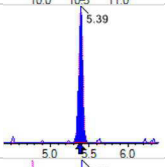
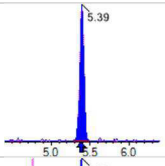
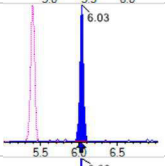
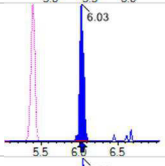
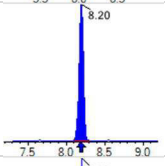
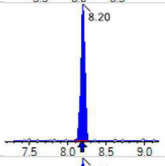
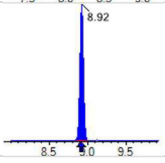
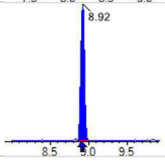
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 41123 (299.0 / 99.0) 29915	(5.09 , 1.00) (0.00 , N/A , -0.3)	3755.2 1839.6	0.7275 110.9 110.2	0.0918 [0.0885]	103.7%			
PFPeS	(349.0 / 80.0) 84569 (349.0 / 99.0) 30584	(5.81 , 0.89) (N/A , 0.01 , 0.0)	564.3 269.3	0.3616 106.4 96.2	0.1096 [0.0938]	116.8%			
PFHxS	(399.0 / 80.0) 64871 (399.0 / 99.0) 22634	(6.51 , 1.00) (0.00 , N/A , -0.2)	792.7 307.2	0.3489 97.5 96.9	0.1025 [0.0911]	112.5%			
PFHpS	(449.0 / 80.0) 66748 (449.0 / 99.0) 21245	(7.17 , 0.92) (N/A , 0.01 , -0.2)	2326.4 9287.2	0.3183 113.2 107.7	0.0841 [0.0951]	88.4%			
PFOS	(499.0 / 80.0) 97873 (499.0 / 99.0) 19559	(7.78 , 1.00) (0.00 , N/A , 0.2)	152.8 200.8	0.1998 92.1 85.9	0.0904 [0.0927]	97.5%			
PFNS	(549.0 / 80.0) 90809 (549.0 / 99.0) 25887	(8.33 , 1.07) (N/A , 0.02 , 0.4)	224857.4 744.9	0.2851 112.0 115.0	0.0952 [0.0960]	99.2%			
PFDS	(599.0 / 80.0) 107300 (599.0 / 99.0) 26448	(8.73 , 1.12) (N/A , 0.01 , 0.0)	26482.3 518.0	0.2465 103.1 107.4	0.0928 [0.0963]	96.4%			
PFDoS	(699.0 / 80.0) 91802 (699.0 / 99.0) 18373	(9.14 , 1.18) (N/A , 0.01 , 0.0)	715.6 244.2	0.2001 89.4 88.2	0.0986 [0.0970]	101.7%			
4:2FTS	(327.0 / 307.0) 70053 (327.0 / 81.0) 47073	(4.92 , 1.00) (0.00 , N/A , 0.2)	735.9 267.1	0.6720 111.4 116.5	0.3621 [0.3738]	96.9%			
6:2FTS	(427.0 / 407.0) 51774 (427.0 / 81.0) 34108	(6.19 , 1.00) (0.00 , N/A , -0.2)	10677.1 558.7	0.6588 92.9 91.1	0.4307 [0.3796]	113.5%			
8:2FTS	(527.0 / 507.0) 55953 (527.0 / 81.0) 40315	(7.37 , 1.00) (0.01 , N/A , 0.6)	13360.4 66173.0	0.7205 94.2 98.3	0.4393 [0.3833]	114.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (2)
Acquired: 2023/04/07 - 16:30

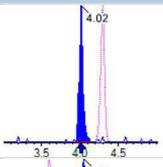
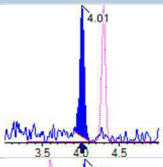
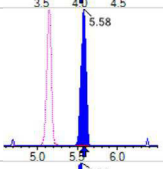
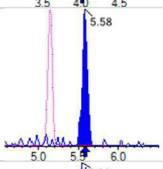
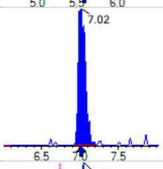
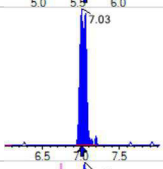
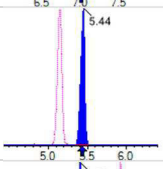
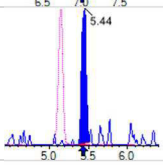
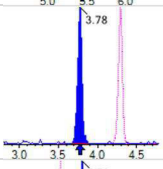
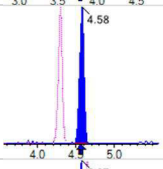
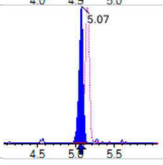
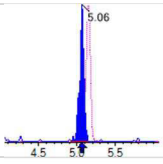
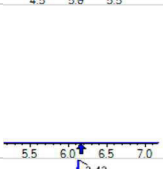
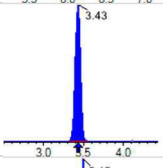
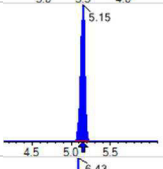
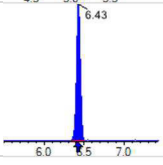
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 132471 (498.0 / 478.0) 2704	(9.76 , 1.00) (0.00 , N/A , 0.1)	764.6 54.8	0.0204 83.6 87.8	0.1016 [0.1000]	101.6%			
NMeFOSA	(512.0 / 219.0) 124401 (512.0 / 169.0) 102269	(10.41 , 1.00) (0.00 , N/A , 1.1)	955.5 916.9	0.8221 96.8 96.6	0.4566 [0.4000]	114.1%			
NEtFOSA	(526.0 / 219.0) 137155 (526.0 / 169.0) 160817	(10.57 , 1.00) (-0.01 , N/A , 0.7)	1288.0 913.7	1.1725 93.1 91.3	0.4274 [0.4000]	106.9%			
NMeFOSAA	(570.0 / 419.0) 17098 (570.0 / 483.0) 7130	(7.74 , 1.00) (0.00 , N/A , 1.7)	40377.6 11630.3	0.4170 81.1 93.6	0.1087 [0.1000]	108.7%			
NEtFOSAA	(584.0 / 419.0) 13345 (584.0 / 526.0) 9986	(8.01 , 1.00) (0.01 , N/A , 0.4)	581833.3 35047.4	0.7483 122.4 123.3	0.0996 [0.1000]	99.6%			
NMeFOSE	(616.0 / 59.0) 52420	(10.35 , 1.00) (0.01 , N/A , 0.0)	159.1	N/A 0.0 0.0	0.4454 [0.4000]	111.3%			
NEtFOSE	(630.0 / 59.0) 58115	(10.53 , 1.00) (0.01 , N/A , 0.0)	170.0	N/A 0.0 0.0	0.3875 [0.4000]	96.9%			
HFPO-DA	(285.0 / 169.0) 26791 (285.0 / 185.0) 70102	(5.39 , 1.00) (0.00 , N/A , 0.0)	359.1 372.2	2.6166 89.3 95.6	0.1982 [0.2000]	99.1%			
ADONA	(377.0 / 85.0) 99662 (377.0 / 251.0) 10872	(6.03 , 1.12) (N/A , 0.01 , 0.3)	513.9 5334.0	0.1091 105.1 114.9	0.2017 [0.1885]	107.0%			
9Cl-Pf3ONS	(531.0 / 351.0) 302301 (533.0 / 353.0) 88632	(8.20 , 1.52) (N/A , 0.02 , 0.2)	891.6 429.8	0.2932 90.9 92.0	0.2063 [0.1867]	110.5%			
11Cl-PF3OUDS	(631.0 / 451.0) 188203 (633.0 / 453.0) 73087	(8.92 , 1.65) (N/A , 0.01 , 0.0)	1183.9 804.5	0.3883 113.8 111.4	0.1949 [0.1886]	103.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (2)
Acquired: 2023/04/07 - 16:30

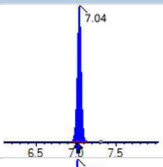
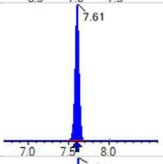
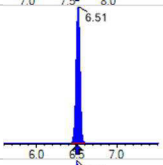
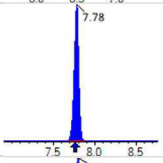
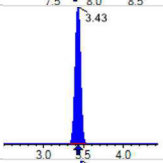
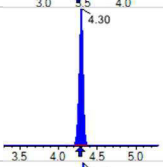
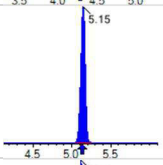
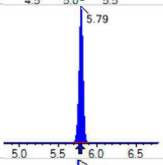
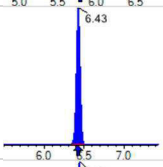
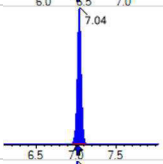
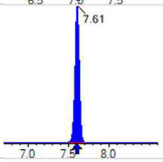
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 4617 (241.0 / 117.0) 5369	(4.02 , 0.93) (N/A , 0.01 , 0.1)	222.6 42.4	1.1629 75.6 79.5	0.4783 [0.4000]	119.6%			
5:3FTCA	(341.0 / 236.7) 23423 (341.0 / 217.0) 38517	(5.58 , 1.08) (N/A , 0.01 , -0.2)	65640.1 95.4	1.6444 87.9 96.9	0.5079 [0.4000]	127.0%			
7:3FTCA	(441.0 / 317.0) 32608 (441.0 / 337.0) 32786	(7.02 , 1.36) (N/A , 0.01 , -0.5)	171.0 781.8	1.0055 122.1 124.7	0.3882 [0.4000]	97.1%			
PFEESA	(315.0 / 135.0) 71574 (315.0 / 83.0) 14449	(5.44 , 1.06) (N/A , 0.01 , 0.1)	818.4 55.0	0.2019 84.4 87.7	0.2046 [0.1785]	114.6%			
PFMPA	(229.0 / 85.0) 10800	(3.78 , 0.88) (N/A , 0.01 , 0.0)	305.6	N/A 0.0 0.0	0.2145 [0.2000]	107.3%			
PFMBA	(279.0 / 85.0) 33710	(4.58 , 1.07) (N/A , 0.01 , 0.0)	516.9	N/A 0.0 0.0	0.2140 [0.2000]	107.0%			
NFDHA	(295.0 / 201.0) 33437 (295.0 / 85.0) 27992	(5.07 , 0.98) (N/A , 0.02 , 0.1)	355.5 336.3	0.8372 85.7 92.1	0.2486 [0.2000]	124.3%			
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 [0.1000]	N/A%			CV2,
13C3_PFBA_IIS	(216.0 / 172.0) 129497	(3.43 , N/A) (N/A , 0.00 , N/A)	1476.0	N/A	1.1359 [1.0000]	113.6% { 121.9% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 121133	(5.15 , N/A) (N/A , 0.01 , N/A)	5848.3	N/A	0.8778 [1.0000]	87.8% { 99.2% }			
13C4_PFOA_IIS	(417.0 / 372.0) 312576	(6.43 , N/A) (N/A , 0.01 , N/A)	7396.8	N/A	1.0063 [1.0000]	100.6% { 116.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (2)
Acquired: 2023/04/07 - 16:30

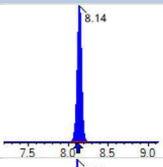
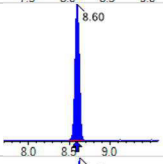
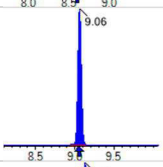
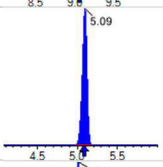
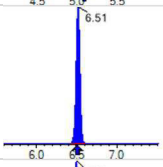
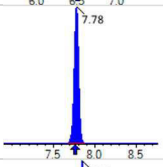
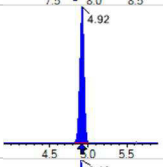
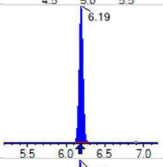
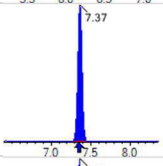
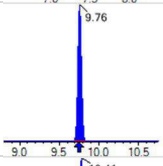
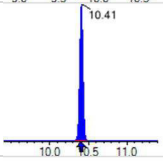
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 322414	(7.04 , N/A) (N/A , 0.02 , N/A)	1627.9	N/A	1.0937 [1.0000]	109.4% { 111.7% }			
13C2_PFDA_IIS	(515.0 / 470.1) 323833	(7.61 , N/A) (N/A , 0.01 , N/A)	9236.6	N/A	1.0446 [1.0000]	104.5% { 107.5% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 463293	(6.51 , N/A) (N/A , 0.01 , N/A)	3085.1	N/A	1.0328 [1.0000]	103.3% { 107.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 767512	(7.78 , N/A) (N/A , 0.02 , N/A)	1887.2	N/A	1.1029 [1.0000]	110.3% { 119.2% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1124725	(3.43 , N/A) (N/A , 0.00 , N/A)	5679.1	N/A	8.0985 [8.0000]	101.2% { 114.4% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 960467	(4.30 , N/A) (N/A , 0.01 , N/A)	3653.6	N/A	5.0223 [4.0000]	125.6% { 115.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 553877	(5.15 , N/A) (N/A , 0.01 , N/A)	2340.1	N/A	2.3899 [2.0000]	119.5% { 116.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 569291	(5.79 , N/A) (N/A , 0.01 , N/A)	3036.9	N/A	2.4530 [2.0000]	122.6% { 112.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 675619	(6.43 , N/A) (N/A , 0.01 , N/A)	3078.9	N/A	2.0997 [2.0000]	105.0% { 110.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 323016	(7.04 , N/A) (N/A , 0.01 , N/A)	8117.3	N/A	1.0284 [1.0000]	102.8% { 109.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 352178	(7.61 , N/A) (N/A , 0.01 , N/A)	6160.2	N/A	0.9956 [1.0000]	99.6% { 99.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (2)
Acquired: 2023/04/07 - 16:30

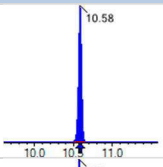
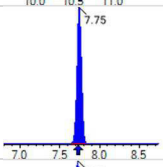
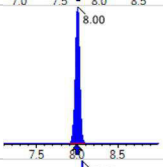
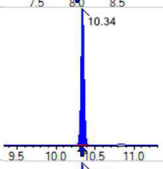
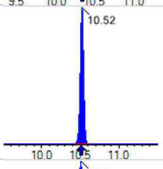
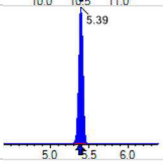
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 365712	(8.14 , N/A) (N/A , 0.02 , N/A)	9455.8	N/A	1.0724 [1.0000]	107.2% { 117.4% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 305472	(8.60 , N/A) (N/A , 0.01 , N/A)	3456.5	N/A	0.9906 [1.0000]	99.1% { 109.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 305462	(9.06 , N/A) (N/A , 0.01 , N/A)	1552.6	N/A	1.0342 [1.0000]	103.4% { 115.2% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1254916	(5.09 , N/A) (N/A , 0.01 , N/A)	2121.4	N/A	2.0739 [2.0000]	103.7% { 106.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 863582	(6.51 , N/A) (N/A , 0.01 , N/A)	2448.9	N/A	1.9939 [2.0000]	99.7% { 110.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1903134	(7.78 , N/A) (N/A , 0.02 , N/A)	2308.6	N/A	2.0368 [2.0000]	101.8% { 120.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 252233	(4.92 , N/A) (N/A , 0.01 , N/A)	1441.0	N/A	4.5536 [4.0000]	113.8% { 124.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 311791	(6.19 , N/A) (N/A , 0.01 , N/A)	2020.1	N/A	4.2404 [4.0000]	106.0% { 124.5% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 359922	(7.37 , N/A) (N/A , 0.01 , N/A)	6059.2	N/A	3.9764 [4.0000]	99.4% { 111.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3069342	(9.76 , N/A) (N/A , 0.01 , N/A)	3011.7	N/A	1.9415 [2.0000]	97.1% { 107.9% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 664878	(10.41 , N/A) (N/A , 0.01 , N/A)	2535.4	N/A	1.8543 [2.0000]	92.7% { 108.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (2)
Acquired: 2023/04/07 - 16:30

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) 592401	(10.58 , N/A) (N/A , 0.01 , N/A)	2698.5	N/A	2.0179 [2.0000]	100.9% { 108.3% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 760983	(7.75 , N/A) (N/A , 0.01 , N/A)	2941.6	N/A	3.8813 [4.0000]	97.0% { 113.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 608922	(8.00 , N/A) (N/A , 0.02 , N/A)	106105.7	N/A	3.7819 [4.0000]	94.5% { 109.8% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2268600	(10.34 , N/A) (N/A , 0.01 , N/A)	1692.5	N/A	19.6931 [20.0000]	98.5% { 110.3% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3064666	(10.52 , N/A) (N/A , 0.01 , N/A)	1931.9	N/A	20.1049 [20.0000]	100.5% { 113.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1135516	(5.39 , N/A) (N/A , 0.01 , N/A)	2763.7	N/A	9.5480 [8.0000]	119.4% { 115.2% }			

INITIAL AND CONTINUING CALIBRATION CHECK

Laboratory: Work Order:

Client: Project:

Instrument ID: Calibration:

Standard ID: Sequence:

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
						+/- %

INITIAL AND CONTINUING CALIBRATION CHECK

Laboratory:

Work Order:

Client:

Project:

Instrument ID:

Calibration:

Standard ID:

Sequence:

INITIAL AND CONTINUING CALIBRATION CHECK

Laboratory: Work Order:

Client: Project:

Instrument ID: Calibration:

Standard ID: Sequence:

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
						+/- %

INITIAL AND CONTINUING CALIBRATION CHECK

Laboratory:

Work Order:

Client:

Project:

Instrument ID:

Calibration:

Standard ID:

Sequence:

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23C0205
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315001
Standard ID:	23C0362	Sequence:	SC01368

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01368-CCV1	PFBA	20.0	20.5	103	ng/mL	+/- 30.00%
	PFPEA	10.0	10.5	105	ng/mL	+/- 30.00%
	PFHXA	5.00	5.38	108	ng/mL	+/- 30.00%
	PFHPA	5.00	5.09	102	ng/mL	+/- 30.00%
	PFOA	5.00	5.00	99.9	ng/mL	+/- 30.00%
	PFNA	5.00	4.92	98.4	ng/mL	+/- 30.00%
	PFDA	5.00	4.97	99.4	ng/mL	+/- 30.00%
	PFUnA	5.00	4.84	96.8	ng/mL	+/- 30.00%
	PFDOA	5.00	5.21	104	ng/mL	+/- 30.00%
	PFTRDA	5.00	5.29	106	ng/mL	+/- 30.00%
	PFTEDA	5.00	5.30	106	ng/mL	+/- 30.00%
	PFBS	4.42	4.41	99.8	ng/mL	+/- 30.00%
	PFPES	4.70	4.89	104	ng/mL	+/- 30.00%
	PFHXS	4.58	4.72	103	ng/mL	+/- 30.00%
	PFHPS	4.78	5.00	105	ng/mL	+/- 30.00%
	PFOS	4.65	4.71	101	ng/mL	+/- 30.00%
	PFNS	4.80	5.24	109	ng/mL	+/- 30.00%
	PFDS	4.82	5.13	107	ng/mL	+/- 30.00%
	PFDOS	4.85	5.18	107	ng/mL	+/- 30.00%
	4:2FTS	18.8	20.4	109	ng/mL	+/- 30.00%
	6:2FTS	19.0	20.5	108	ng/mL	+/- 30.00%
	8:2FTS	19.2	19.8	103	ng/mL	+/- 30.00%
	PFOSA	5.00	5.22	104	ng/mL	+/- 30.00%
	NMeFOSA	20.0	22.0	110	ng/mL	+/- 30.00%
	NEtFOSA	20.0	20.8	104	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	5.52	110	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	4.93	98.5	ng/mL	+/- 30.00%
	NMeFOSE	20.0	20.3	102	ng/mL	+/- 30.00%
	NEtFOSE	20.0	20.5	103	ng/mL	+/- 30.00%
	HFPO-DA	10.0	10.7	107	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23C0205
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315001
Standard ID:	23C0362	Sequence:	SC01368

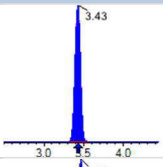
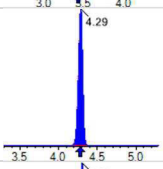
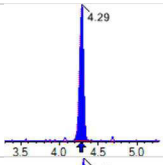
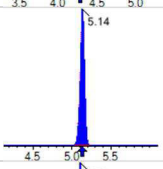
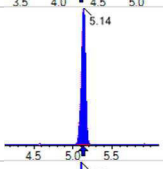
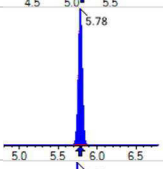
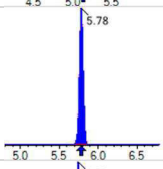
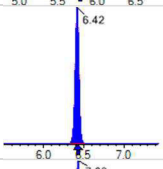
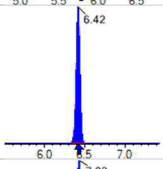
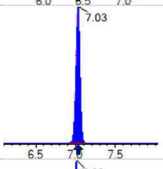
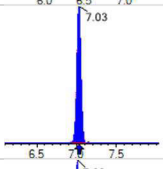
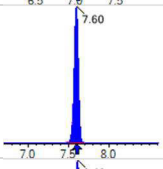
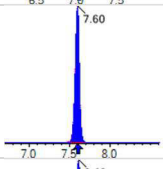
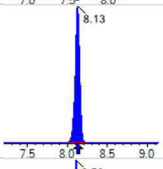
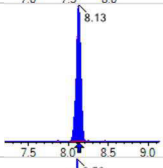
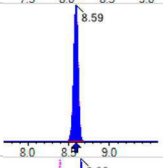
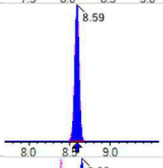
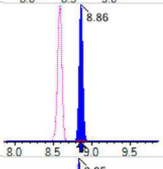
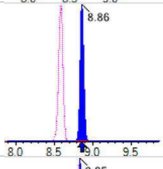
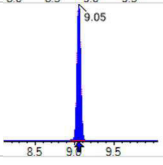
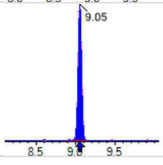
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01368-CCV1	ADONA	9.45	11.2	118	ng/mL	+/- 30.00%
	PFEESA	8.90	10.0	112	ng/mL	+/- 30.00%
	PFMPA	10.0	11.2	112	ng/mL	+/- 30.00%
	PFMBA	10.0	10.7	107	ng/mL	+/- 30.00%
	NFDHA	10.0	11.2	112	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	10.2	109	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	10.5	111	ng/mL	+/- 30.00%
	3:3FTCA	20.0	19.8	98.9	ng/mL	+/- 30.00%
	5:3FTCA	20.0	21.7	108	ng/mL	+/- 30.00%
	7:3FTCA	20.0	21.5	108	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (3)
Acquired: 2023/04/07 - 16:43

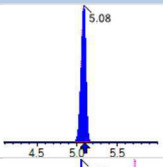
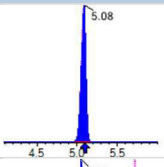
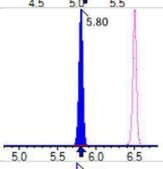
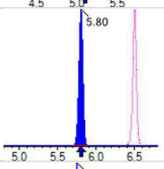
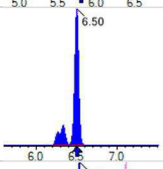
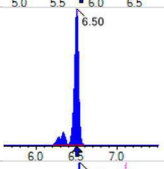
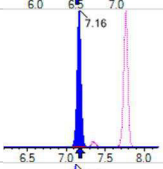
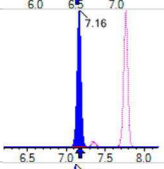
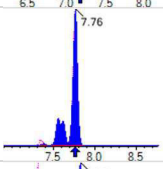
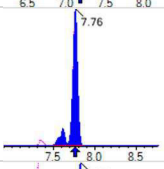
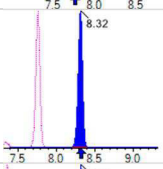
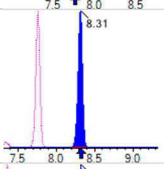
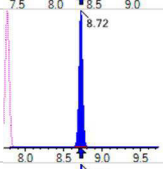
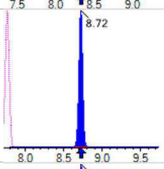
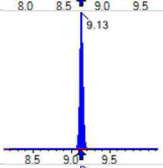
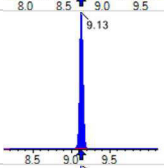
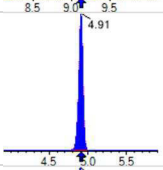
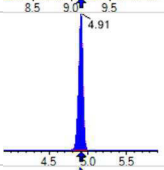
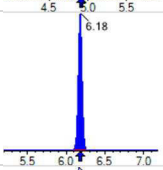
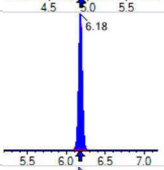
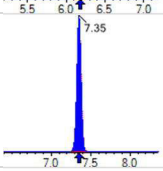
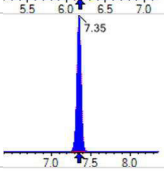
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2195103	(3.43 , 1.00) (0.00 , N/A , 0.0)	209.2	N/A 0.0 0.0	20.5429 [20.0000]	102.7%			
PFPeA	(263.0 / 219.0) 2062981 (263.0 / 69.0) 25369	(4.29 , 1.00) (0.00 , N/A , -0.1)	4179.6 2715.5	0.0123 99.8 100.0	10.5225 [10.0000]	105.2%			
PFHxA	(313.0 / 269.0) 1231282 (313.0 / 119.0) 116345	(5.14 , 1.00) (0.00 , N/A , -0.1)	3012.4 1981.6	0.0945 93.5 100.0	5.3757 [5.0000]	107.5%			
PFHpA	(363.0 / 319.0) 1101037 (363.0 / 169.0) 366129	(5.78 , 1.00) (0.00 , N/A , 0.0)	5349.3 11226532.5	0.3325 112.1 100.0	5.0911 [5.0000]	101.8%			
PFOA	(413.0 / 369.0) 1516233 (413.0 / 169.0) 484170	(6.42 , 1.00) (0.00 , N/A , 0.0)	2888.7 482165.8	0.3193 94.9 100.0	4.9958 [5.0000]	99.9%			
PFNA	(463.0 / 419.0) 1314003 (463.0 / 169.0) 279314	(7.03 , 1.00) (0.00 , N/A , 0.2)	36959.4 470171.6	0.2126 94.5 100.0	4.9181 [5.0000]	98.4%			
PFDA	(513.0 / 469.0) 1735736 (513.0 / 169.0) 184444	(7.60 , 1.00) (0.00 , N/A , -0.1)	2067.7 254878.9	0.1063 88.2 100.0	4.9682 [5.0000]	99.4%			
PFUnA	(563.0 / 519.0) 1350252 (563.0 / 169.0) 166724	(8.13 , 1.00) (0.00 , N/A , -0.1)	2239.6 1144.8	0.1235 119.6 100.0	4.8395 [5.0000]	96.8%			
PFDoA	(613.0 / 569.0) 1263390 (613.0 / 169.0) 207694	(8.59 , 1.00) (0.00 , N/A , 0.0)	2221.6 51018.9	0.1644 110.0 100.0	5.2105 [5.0000]	104.2%			
PFTrDA	(663.0 / 619.0) 1188506 (663.0 / 169.0) 297401	(8.86 , 1.03) (N/A , 0.00 , 0.1)	2638.4 1964.7	0.2502 97.6 100.0	5.2941 [5.0000]	105.9%			
PFTeDA	(713.0 / 669.0) 1260458 (713.0 / 169.0) 273393	(9.05 , 1.00) (0.00 , N/A , 0.0)	2651.2 1075.8	0.2169 108.8 100.0	5.2994 [5.0000]	106.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (3)
Acquired: 2023/04/07 - 16:43

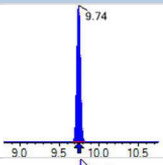
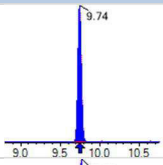
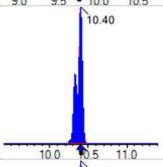
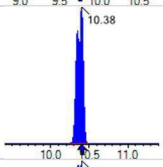
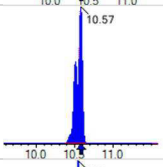
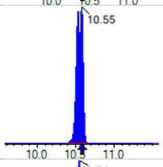
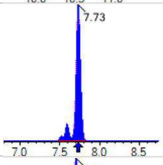
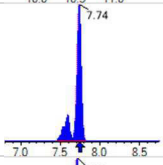
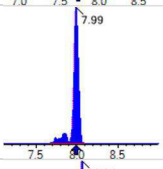
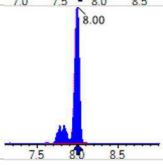
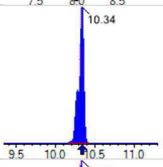
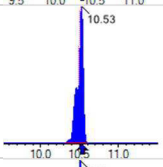
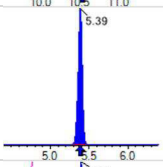
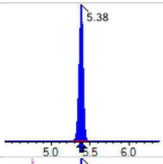
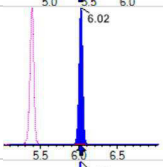
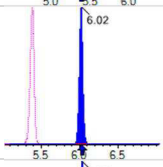
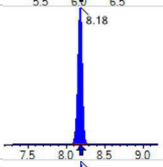
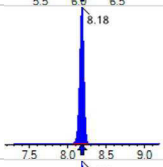
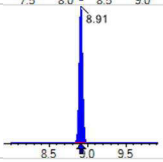
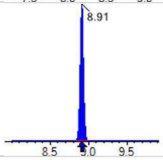
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 1862884 (299.0 / 99.0) 1229639	(5.08 , 1.00) (0.00 , N/A , -0.1)	30296.6 4794.4	0.6601 100.6 100.0	4.4122 [4.4237]	99.7%			
PFPeS	(349.0 / 80.0) 3404392 (349.0 / 99.0) 1279536	(5.80 , 0.89) (N/A , 0.00 , 0.0)	4284.6 3035.8	0.3758 110.6 100.0	4.8883 [4.6919]	104.2%			
PFHxS	(399.0 / 80.0) 2691707 (399.0 / 99.0) 969307	(6.50 , 1.00) (0.00 , N/A , 0.0)	121488.5 4405.5	0.3601 100.6 100.0	4.7153 [4.5549]	103.5%			
PFHpS	(449.0 / 80.0) 3281726 (449.0 / 99.0) 969423	(7.16 , 0.92) (N/A , 0.00 , 0.0)	22605578.6 22481281.4	0.2954 105.1 100.0	4.9966 [4.7570]	105.0%			
PFOS	(499.0 / 80.0) 4220290 (499.0 / 99.0) 982260	(7.76 , 1.00) (0.00 , N/A , 0.1)	9672.4 1668.7	0.2327 107.2 100.0	4.7131 [4.6375]	101.6%			
PFNS	(549.0 / 80.0) 4136879 (549.0 / 99.0) 1025366	(8.32 , 1.07) (N/A , 0.00 , 0.1)	233550.7 66904.4	0.2479 97.4 100.0	5.2408 [4.7994]	109.2%			
PFDS	(599.0 / 80.0) 4908761 (599.0 / 99.0) 1126869	(8.72 , 1.12) (N/A , 0.00 , 0.0)	10423.4 5257.9	0.2296 96.0 100.0	5.1340 [4.8155]	106.6%			
PFDoS	(699.0 / 80.0) 3988202 (699.0 / 99.0) 904582	(9.13 , 1.18) (N/A , 0.00 , 0.1)	5288.3 3246.2	0.2268 101.3 100.0	5.1760 [4.8478]	106.8%			
4:2FTS	(327.0 / 307.0) 3173133 (327.0 / 81.0) 1830950	(4.91 , 1.00) (0.00 , N/A , 0.1)	3119.6 2324.3	0.5770 95.7 100.0	20.4080 [18.6906]	109.2%			
6:2FTS	(427.0 / 407.0) 1983188 (427.0 / 81.0) 1434066	(6.18 , 1.00) (0.00 , N/A , 0.1)	2290.4 2601.6	0.7231 101.9 100.0	20.5476 [18.9808]	108.3%			
8:2FTS	(527.0 / 507.0) 2254533 (527.0 / 81.0) 1652354	(7.35 , 1.00) (0.00 , N/A , 0.0)	3941.8 3446.0	0.7329 95.9 100.0	19.7507 [19.1658]	103.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (3)
Acquired: 2023/04/07 - 16:43

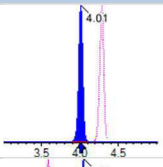
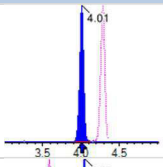
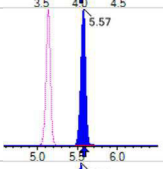
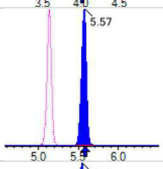
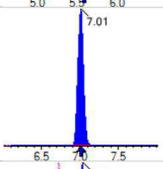
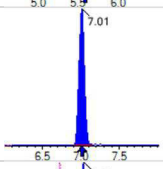
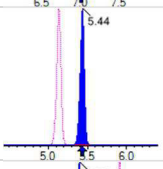
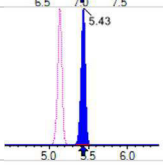
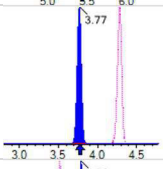
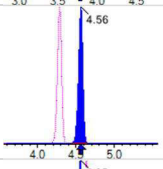
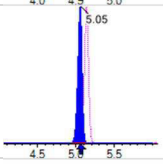
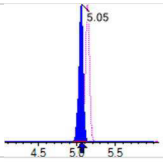
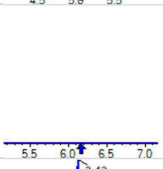
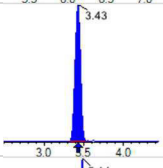
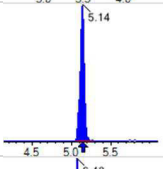
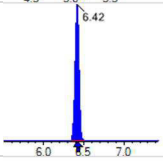
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 6301099 (498.0 / 478.0) 146411	(9.74 , 1.00) (0.00 , N/A , 0.0)	6444.7 1174.7	0.0232 95.1 100.0	5.2183 [5.0000]	104.4%			
NMeFOSA	(512.0 / 219.0) 5553278 (512.0 / 169.0) 4728038	(10.40 , 1.00) (0.00 , N/A , 1.3)	4665.1 5248.4	0.8514 100.2 100.0	22.0143 [20.0000]	110.1%			
NEtFOSA	(526.0 / 219.0) 6159203 (526.0 / 169.0) 7909768	(10.57 , 1.00) (0.00 , N/A , 1.0)	8351.3 8330.9	1.2842 102.0 100.0	20.7934 [20.0000]	104.0%			
NMeFOSAA	(570.0 / 419.0) 766382 (570.0 / 483.0) 341572	(7.73 , 1.00) (0.00 , N/A , -0.3)	3527.5 590.0	0.4457 86.7 100.0	5.5163 [5.0000]	110.3%			
NEtFOSAA	(584.0 / 419.0) 601091 (584.0 / 526.0) 364812	(7.99 , 1.00) (0.01 , N/A , -0.2)	43608.8 2603.9	0.6069 99.3 100.0	4.9263 [5.0000]	98.5%			
NMeFOSE	(616.0 / 59.0) 2169721	(10.34 , 1.00) (0.01 , N/A , 0.0)	2359.4	N/A 0.0 0.0	20.3342 [20.0000]	101.7%			
NEtFOSE	(630.0 / 59.0) 2719323	(10.53 , 1.00) (0.01 , N/A , 0.0)	1184.5	N/A 0.0 0.0	20.5005 [20.0000]	102.5%			
HFPO-DA	(285.0 / 169.0) 1260357 (285.0 / 185.0) 3449433	(5.39 , 1.00) (0.00 , N/A , 0.1)	1831.2 3376.8	2.7369 93.4 100.0	10.7371 [10.0000]	107.4%			
ADONA	(377.0 / 85.0) 4787172 (377.0 / 251.0) 454494	(6.02 , 1.12) (N/A , 0.00 , 0.0)	3933.9 3075.7	0.0949 91.5 100.0	11.1556 [9.4270]	118.3%			
9Cl-Pf3ONS	(531.0 / 351.0) 13014548 (533.0 / 353.0) 4145606	(8.18 , 1.52) (N/A , 0.00 , 0.1)	4357.9 3960.0	0.3185 98.7 100.0	10.2301 [9.3325]	109.6%			
11Cl-PF3OUDS	(631.0 / 451.0) 8818606 (633.0 / 453.0) 3073207	(8.91 , 1.65) (N/A , 0.00 , 0.0)	6702.8 6771.3	0.3485 102.1 100.0	10.5194 [9.4321]	111.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (3)
Acquired: 2023/04/07 - 16:43

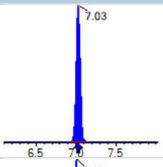
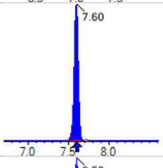
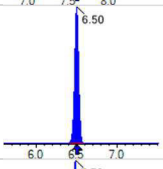
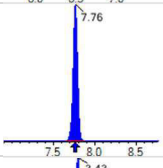
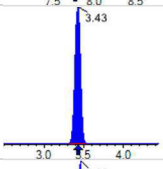
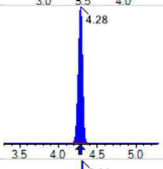
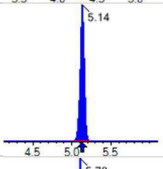
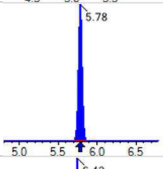
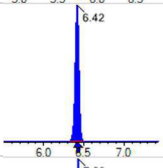
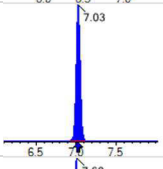
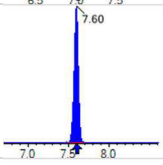
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 165944 (241.0 / 117.0) 242725	(4.01 , 0.94) (N/A , 0.00 , 0.0)	1639.4 1099.6	1.4627 95.0 100.0	19.7864 [20.0000]	98.9%			
5:3FTCA	(341.0 / 236.7) 859067 (341.0 / 217.0) 1457607	(5.57 , 1.08) (N/A , 0.00 , 0.2)	1160.1 1439.8	1.6967 90.7 100.0	21.6769 [20.0000]	108.4%			
7:3FTCA	(441.0 / 317.0) 1552099 (441.0 / 337.0) 1251038	(7.01 , 1.36) (N/A , 0.00 , 0.0)	1754.9 1426.0	0.8060 97.9 100.0	21.5054 [20.0000]	107.5%			
PFEESA	(315.0 / 135.0) 3006373 (315.0 / 83.0) 691957	(5.44 , 1.06) (N/A , 0.00 , 0.0)	3633.8 1811.3	0.2302 96.2 100.0	10.0001 [8.9246]	112.1%			
PFMPA	(229.0 / 85.0) 489970	(3.77 , 0.88) (N/A , 0.00 , 0.0)	4398.9	N/A 0.0 0.0	11.1999 [10.0000]	112.0%			
PFMBA	(279.0 / 85.0) 1464646	(4.56 , 1.06) (N/A , 0.00 , 0.0)	3616.4	N/A 0.0 0.0	10.6978 [10.0000]	107.0%			
NFDHA	(295.0 / 201.0) 1296534 (295.0 / 85.0) 1178834	(5.05 , 0.98) (N/A , 0.00 , 0.0)	2336.9 2660.1	0.9092 93.1 100.0	11.2174 [10.0000]	112.2%			
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 [5.0000]	N/A%			CV2,
13C3_PFBA_IIS	(216.0 / 172.0) 106210	(3.43 , N/A) (N/A , 0.00 , N/A)	1256.2	N/A	0.9316 [1.0000]	93.2% { 100.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 122159	(5.14 , N/A) (N/A , 0.00 , N/A)	13510.4	N/A	0.8852 [1.0000]	88.5% { 100.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 269394	(6.42 , N/A) (N/A , 0.00 , N/A)	10986.9	N/A	0.8673 [1.0000]	86.7% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (3)
Acquired: 2023/04/07 - 16:43

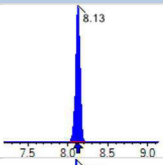
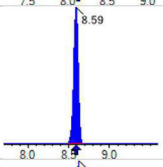
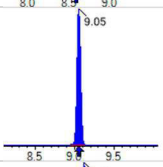
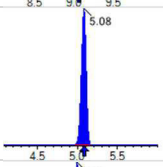
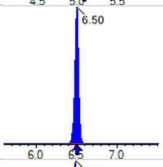
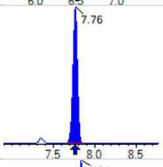
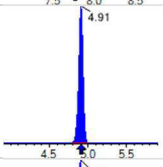
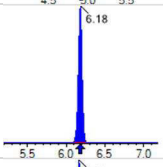
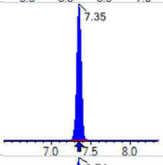
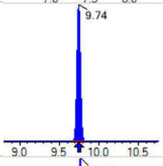
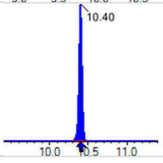
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 288569	(7.03 , N/A) (N/A , 0.00 , N/A)	4645831.6	N/A	0.9789 [1.0000]	97.9% { 100.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 301313	(7.60 , N/A) (N/A , 0.00 , N/A)	313.8	N/A	0.9720 [1.0000]	97.2% { 100.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 429911	(6.50 , N/A) (N/A , 0.00 , N/A)	2192.3	N/A	0.9584 [1.0000]	95.8% { 100.0% }			
13C4_PFOS_IIS	(503.0 / 79.9) 644118	(7.76 , N/A) (N/A , 0.00 , N/A)	2918.0	N/A	0.9256 [1.0000]	92.6% { 100.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 983275	(3.43 , N/A) (N/A , 0.00 , N/A)	4401.6	N/A	8.6323 [8.0000]	107.9% { 100.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 834653	(4.28 , N/A) (N/A , 0.00 , N/A)	3181.8	N/A	4.3277 [4.0000]	108.2% { 100.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 475953	(5.14 , N/A) (N/A , 0.00 , N/A)	2612.3	N/A	2.0364 [2.0000]	101.8% { 100.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 504195	(5.78 , N/A) (N/A , 0.00 , N/A)	13558.5	N/A	2.1542 [2.0000]	107.7% { 100.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 611154	(6.42 , N/A) (N/A , 0.00 , N/A)	2422.2	N/A	2.2038 [2.0000]	110.2% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 295665	(7.03 , N/A) (N/A , 0.00 , N/A)	4141745.0	N/A	1.0518 [1.0000]	105.2% { 100.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 352769	(7.60 , N/A) (N/A , 0.00 , N/A)	261.4	N/A	1.0718 [1.0000]	107.2% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (3)
Acquired: 2023/04/07 - 16:43

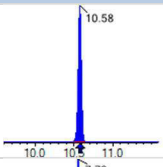
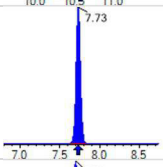
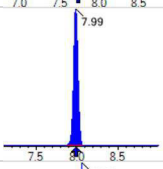
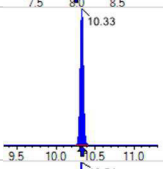
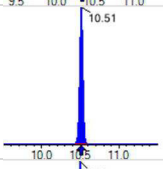
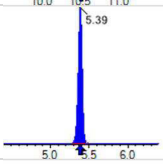
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 311415	(8.13 , N/A) (N/A , 0.00 , N/A)	2184.1	N/A	0.9815 [1.0000]	98.1% { 100.0% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 279021	(8.59 , N/A) (N/A , 0.00 , N/A)	7892.3	N/A	0.9724 [1.0000]	97.2% { 100.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 265249	(9.05 , N/A) (N/A , 0.00 , N/A)	1349.9	N/A	0.9652 [1.0000]	96.5% { 100.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1182564	(5.08 , N/A) (N/A , 0.00 , N/A)	2298.5	N/A	2.1061 [2.0000]	105.3% { 100.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 779143	(6.50 , N/A) (N/A , 0.00 , N/A)	2287.3	N/A	1.9387 [2.0000]	96.9% { 100.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1574488	(7.76 , N/A) (N/A , 0.00 , N/A)	1921.3	N/A	2.0079 [2.0000]	100.4% { 100.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 202689	(4.91 , N/A) (N/A , 0.00 , N/A)	2032.2	N/A	3.9433 [4.0000]	98.6% { 100.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 250362	(6.18 , N/A) (N/A , 0.00 , N/A)	2613.0	N/A	3.6693 [4.0000]	91.7% { 100.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 322550	(7.35 , N/A) (N/A , 0.00 , N/A)	1624.5	N/A	3.8402 [4.0000]	96.0% { 100.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2843890	(9.74 , N/A) (N/A , 0.00 , N/A)	4997.4	N/A	2.1435 [2.0000]	107.2% { 100.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 615586	(10.40 , N/A) (N/A , 0.00 , N/A)	3048.8	N/A	2.0457 [2.0000]	102.3% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (3)
Acquired: 2023/04/07 - 16:43

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) 546856	(10.58 , N/A) (N/A , 0.00 , N/A)	3007.4	N/A	2.2196 [2.0000]	111.0% { 100.0% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 672370	(7.73 , N/A) (N/A , 0.00 , N/A)	1767.6	N/A	4.0863 [4.0000]	102.2% { 100.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 554480	(7.99 , N/A) (N/A , 0.00 , N/A)	5414.3	N/A	4.1035 [4.0000]	102.6% { 100.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2056733	(10.33 , N/A) (N/A , 0.00 , N/A)	1601.3	N/A	21.2742 [20.0000]	106.4% { 100.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2710750	(10.51 , N/A) (N/A , 0.00 , N/A)	1913.3	N/A	21.1899 [20.0000]	105.9% { 100.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 986036	(5.39 , N/A) (N/A , 0.00 , N/A)	2547.6	N/A	8.2214 [8.0000]	102.8% { 100.0% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23C0205
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315001
Standard ID:	23C0362	Sequence:	SC01368

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01368-CCV2	PFBA	20.0	20.5	102	ng/mL	+/- 30.00%
	PFPEA	10.0	9.82	98.2	ng/mL	+/- 30.00%
	PFHXA	5.00	4.73	94.7	ng/mL	+/- 30.00%
	PFHPA	5.00	5.02	100	ng/mL	+/- 30.00%
	PFOA	5.00	4.93	98.6	ng/mL	+/- 30.00%
	PFNA	5.00	5.11	102	ng/mL	+/- 30.00%
	PFDA	5.00	4.55	90.9	ng/mL	+/- 30.00%
	PFUnA	5.00	4.74	94.8	ng/mL	+/- 30.00%
	PFDOA	5.00	5.12	102	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.92	98.4	ng/mL	+/- 30.00%
	PFTEDA	5.00	5.23	105	ng/mL	+/- 30.00%
	PFBS	4.42	4.60	104	ng/mL	+/- 30.00%
	PFPES	4.70	5.07	108	ng/mL	+/- 30.00%
	PFHXS	4.58	4.79	105	ng/mL	+/- 30.00%
	PFHPS	4.78	4.80	100	ng/mL	+/- 30.00%
	PFOS	4.65	4.59	98.6	ng/mL	+/- 30.00%
	PFNS	4.80	5.35	111	ng/mL	+/- 30.00%
	PFDS	4.82	5.06	105	ng/mL	+/- 30.00%
	PFDOS	4.85	5.17	107	ng/mL	+/- 30.00%
	4:2FTS	18.8	18.2	96.9	ng/mL	+/- 30.00%
	6:2FTS	19.0	20.0	105	ng/mL	+/- 30.00%
	8:2FTS	19.2	19.7	103	ng/mL	+/- 30.00%
	PFOSA	5.00	5.34	107	ng/mL	+/- 30.00%
	NMeFOSA	20.0	21.5	108	ng/mL	+/- 30.00%
	NEtFOSA	20.0	21.3	106	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	5.24	105	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	5.42	108	ng/mL	+/- 30.00%
	NMeFOSE	20.0	20.3	101	ng/mL	+/- 30.00%
	NEtFOSE	20.0	20.2	101	ng/mL	+/- 30.00%
	HFPO-DA	10.0	10.5	105	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23C0205
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315001
Standard ID:	23C0362	Sequence:	SC01368

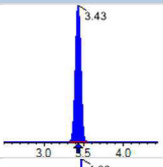
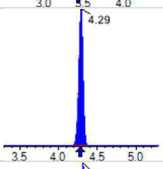
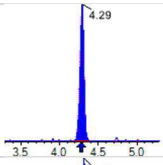
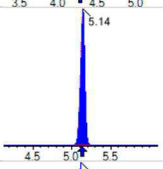
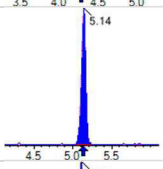
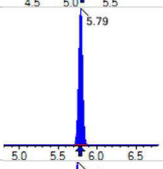
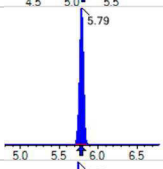
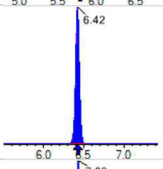
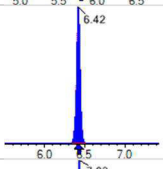
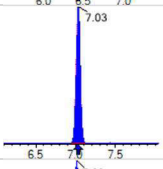
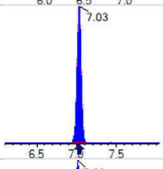
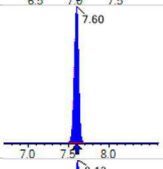
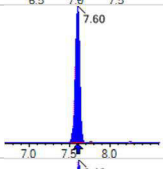
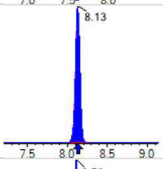
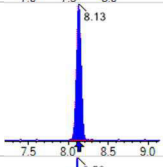
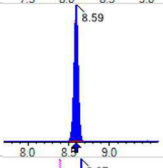
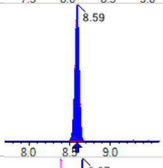
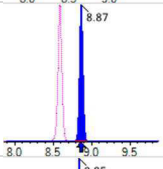
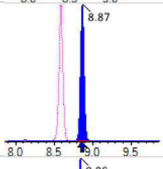
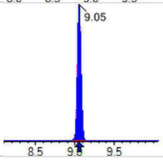
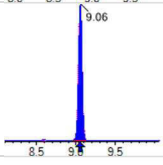
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01368-CCV2	ADONA	9.45	10.0	106	ng/mL	+/- 30.00%
	PFEESA	8.90	8.84	99.3	ng/mL	+/- 30.00%
	PFMPA	10.0	9.64	96.4	ng/mL	+/- 30.00%
	PFMBA	10.0	9.99	99.9	ng/mL	+/- 30.00%
	NFDHA	10.0	10.1	101	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	10.3	110	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	9.78	104	ng/mL	+/- 30.00%
	3:3FTCA	20.0	17.4	87.0	ng/mL	+/- 30.00%
	5:3FTCA	20.0	19.2	96.0	ng/mL	+/- 30.00%
	7:3FTCA	20.0	19.2	96.0	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (26)
Acquired: 2023/04/07 - 21:39

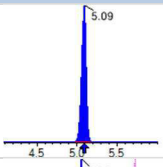
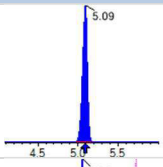
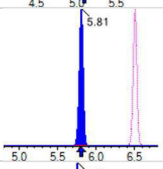
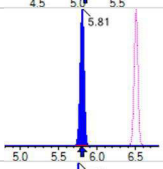
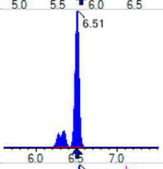
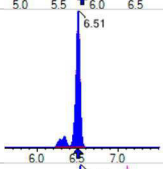
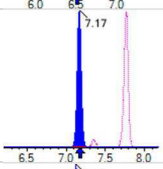
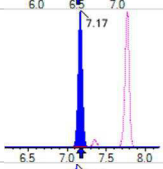
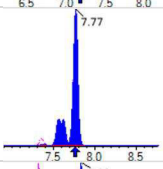
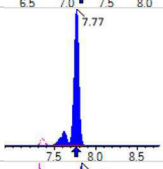
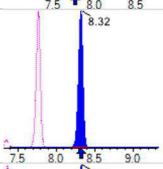
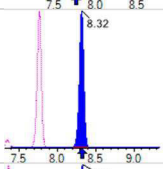
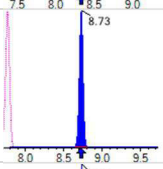
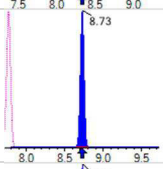
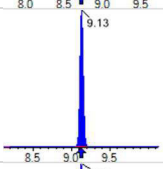
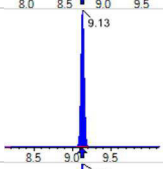
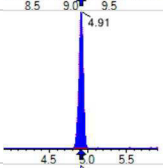
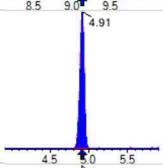
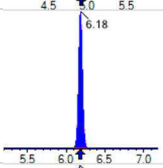
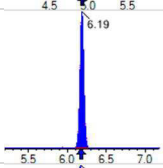
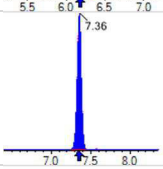
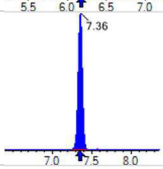
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2070994	(3.43 , 1.00) (0.00 , N/A , 0.0)	223.6	N/A 0.0 0.0	20.4566 [20.0000]	102.3%			
PFPeA	(263.0 / 219.0) 1949392 (263.0 / 69.0) 21981	(4.29 , 1.00) (0.00 , N/A , -0.1)	4432.3 21205.0	0.0113 91.5 91.7	9.8150 [10.0000]	98.2%			
PFHxA	(313.0 / 269.0) 1192494 (313.0 / 119.0) 115244	(5.14 , 1.00) (0.00 , N/A , 0.0)	2868.8 3604092.3	0.0966 95.7 102.3	4.7334 [5.0000]	94.7%			
PFHpA	(363.0 / 319.0) 1124193 (363.0 / 169.0) 322661	(5.79 , 1.00) (0.00 , N/A , 0.1)	8575.4 12783699.3	0.2870 96.7 86.3	5.0188 [5.0000]	100.4%			
PFOA	(413.0 / 369.0) 1369053 (413.0 / 169.0) 434106	(6.42 , 1.00) (0.00 , N/A , 0.1)	2204.6 15451334.3	0.3171 94.2 99.3	4.9286 [5.0000]	98.6%			
PFNA	(463.0 / 419.0) 1262549 (463.0 / 169.0) 264007	(7.03 , 1.00) (0.00 , N/A , 0.1)	5850.4 402627.2	0.2091 93.0 98.4	5.1098 [5.0000]	102.2%			
PFDA	(513.0 / 469.0) 1579522 (513.0 / 169.0) 186193	(7.60 , 1.00) (0.00 , N/A , -0.1)	2281.0 1689.2	0.1179 97.9 110.9	4.5469 [5.0000]	90.9%			
PFUnA	(563.0 / 519.0) 1401940 (563.0 / 169.0) 178478	(8.13 , 1.00) (0.00 , N/A , -0.1)	1858.5 808.0	0.1273 123.3 103.1	4.7392 [5.0000]	94.8%			
PFDoA	(613.0 / 569.0) 1300211 (613.0 / 169.0) 224846	(8.59 , 1.00) (0.00 , N/A , -0.1)	3167.2 1876.1	0.1729 115.7 105.2	5.1236 [5.0000]	102.5%			
PFTrDA	(663.0 / 619.0) 1155502 (663.0 / 169.0) 285734	(8.87 , 1.03) (N/A , 0.00 , 0.0)	2556.3 1445.8	0.2473 96.5 98.8	4.9179 [5.0000]	98.4%			
PFTeDA	(713.0 / 669.0) 1247097 (713.0 / 169.0) 264055	(9.05 , 1.00) (0.00 , N/A , -0.2)	2482.7 1587.2	0.2117 106.2 97.6	5.2262 [5.0000]	104.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (26)
Acquired: 2023/04/07 - 21:39

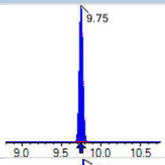
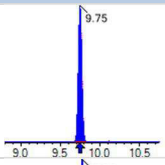
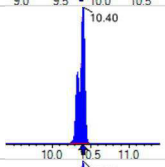
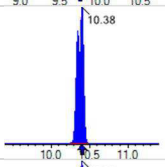
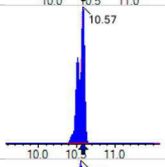
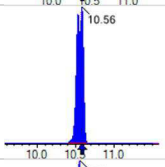
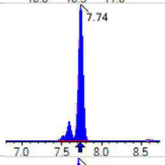
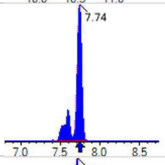
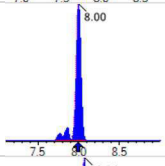
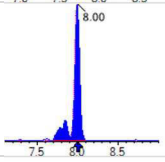
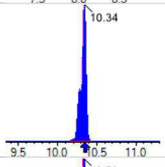
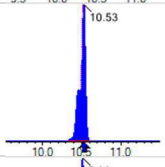
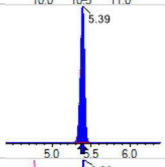
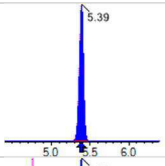
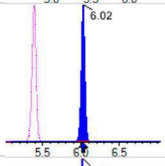
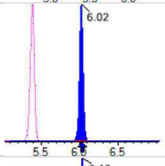
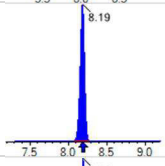
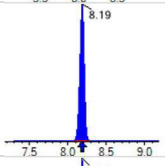
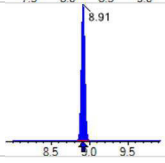
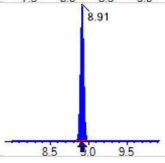
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 1835800 (299.0 / 99.0) 1126371	(5.09 , 1.00) (0.00 , N/A , -0.1)	17775900.3 4425.3	0.6136 93.6 93.0	4.5972 [4.4237]	103.9%			
PFPeS	(349.0 / 80.0) 3500362 (349.0 / 99.0) 1201121	(5.81 , 0.89) (N/A , 0.00 , 0.1)	3610.7 2545.7	0.3431 101.0 91.3	5.0739 [4.6919]	108.1%			
PFHxS	(399.0 / 80.0) 2708180 (399.0 / 99.0) 997365	(6.51 , 1.00) (0.00 , N/A , 0.0)	174317.8 2515.6	0.3683 102.9 102.3	4.7893 [4.5549]	105.1%			
PFHpS	(449.0 / 80.0) 3185561 (449.0 / 99.0) 861351	(7.17 , 0.92) (N/A , 0.00 , 0.0)	51559861.9 26137.5	0.2704 96.2 91.5	4.7956 [4.7570]	100.8%			
PFOS	(499.0 / 80.0) 4153492 (499.0 / 99.0) 930920	(7.77 , 1.00) (0.00 , N/A , 0.1)	6273.4 4067.5	0.2241 103.3 96.3	4.5862 [4.6375]	98.9%			
PFNS	(549.0 / 80.0) 4269033 (549.0 / 99.0) 1023777	(8.32 , 1.07) (N/A , 0.00 , 0.1)	14754.1 850107.4	0.2398 94.2 96.8	5.3472 [4.7994]	111.4%			
PFDS	(599.0 / 80.0) 4896029 (599.0 / 99.0) 1135287	(8.73 , 1.12) (N/A , 0.01 , 0.0)	10688.8 22374.8	0.2319 97.0 101.0	5.0630 [4.8155]	105.1%			
PFDoS	(699.0 / 80.0) 4027826 (699.0 / 99.0) 951325	(9.13 , 1.18) (N/A , 0.00 , 0.0)	2952.1 2573.5	0.2362 105.5 104.1	5.1686 [4.8478]	106.6%			
4:2FTS	(327.0 / 307.0) 3126784 (327.0 / 81.0) 1961971	(4.91 , 1.00) (0.00 , N/A , 0.0)	4115.0 3025.3	0.6275 104.0 108.7	18.2255 [18.6906]	97.5%			
6:2FTS	(427.0 / 407.0) 2198488 (427.0 / 81.0) 1532086	(6.18 , 1.00) (0.00 , N/A , -0.1)	2350.6 3712.3	0.6969 98.2 96.4	19.9833 [18.9808]	105.3%			
8:2FTS	(527.0 / 507.0) 2298174 (527.0 / 81.0) 1811656	(7.36 , 1.00) (0.00 , N/A , 0.0)	3348.6 2812.0	0.7883 103.1 107.6	19.7114 [19.1658]	102.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (26)
Acquired: 2023/04/07 - 21:39

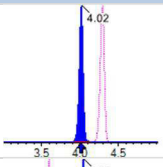
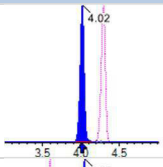
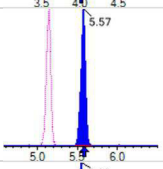
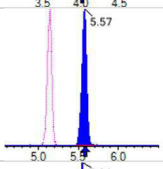
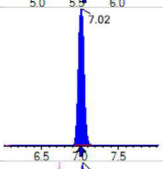
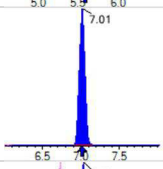
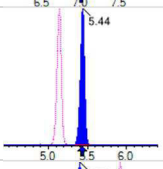
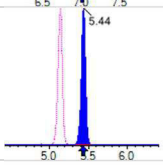
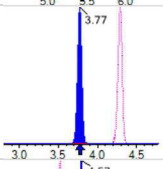
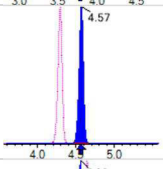
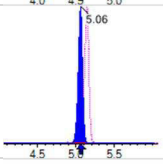
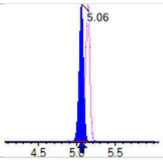
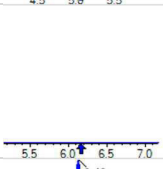
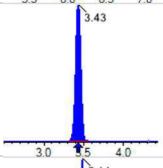
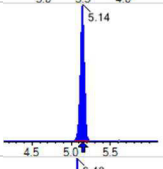
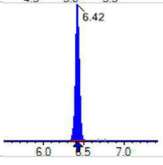
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 6352490 (498.0 / 478.0) 149232	(9.75 , 1.00) (0.00 , N/A , 0.0)	5202.2 1008.6	0.0235 96.2 101.1	5.3367 [5.0000]	106.7%			
NMeFOSA	(512.0 / 219.0) 5605621 (512.0 / 169.0) 4659001	(10.40 , 1.00) (0.00 , N/A , 1.2)	5734.9 4553.2	0.8311 97.9 97.6	21.5235 [20.0000]	107.6%			
NEtFOSA	(526.0 / 219.0) 6158921 (526.0 / 169.0) 7870933	(10.57 , 1.00) (-0.01 , N/A , 0.9)	7796.3 7206.9	1.2780 101.5 99.5	21.2901 [20.0000]	106.5%			
NMeFOSAA	(570.0 / 419.0) 746996 (570.0 / 483.0) 339286	(7.74 , 1.00) (0.00 , N/A , -0.1)	4332.6 470.7	0.4542 88.3 101.9	5.2443 [5.0000]	104.9%			
NEtFOSAA	(584.0 / 419.0) 649386 (584.0 / 526.0) 347810	(8.00 , 1.00) (0.01 , N/A , 0.0)	2645.1 1640.0	0.5356 87.6 88.2	5.4151 [5.0000]	108.3%			
NMeFOSE	(616.0 / 59.0) 2223646	(10.34 , 1.00) (0.01 , N/A , 0.0)	2086.1	N/A 0.0 0.0	20.2702 [20.0000]	101.4%			
NEtFOSE	(630.0 / 59.0) 2809321	(10.53 , 1.00) (0.01 , N/A , 0.0)	1380.5	N/A 0.0 0.0	20.1835 [20.0000]	100.9%			
HFPO-DA	(285.0 / 169.0) 1279495 (285.0 / 185.0) 3315169	(5.39 , 1.00) (0.00 , N/A , 0.0)	1932.2 4668.3	2.5910 88.4 94.7	10.4528 [10.0000]	104.5%			
ADONA	(377.0 / 85.0) 4478539 (377.0 / 251.0) 455627	(6.02 , 1.12) (N/A , 0.00 , 0.0)	5668.1 4619.5	0.1017 98.1 107.2	10.0080 [9.4270]	106.2%			
9Cl-Pf3ONS	(531.0 / 351.0) 13694187 (533.0 / 353.0) 4132005	(8.19 , 1.52) (N/A , 0.00 , 0.0)	4513.8 3593.6	0.3017 93.5 94.7	10.3224 [9.3325]	110.6%			
11Cl-PF3OUDS	(631.0 / 451.0) 8551488 (633.0 / 453.0) 3090502	(8.91 , 1.65) (N/A , 0.00 , 0.0)	5891.3 4523.2	0.3614 105.9 103.7	9.7820 [9.4321]	103.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (26)
Acquired: 2023/04/07 - 21:39

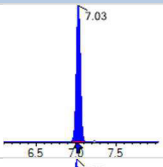
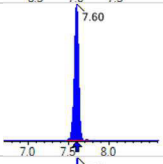
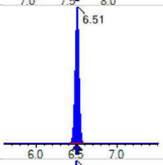
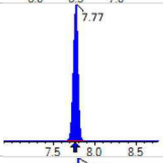
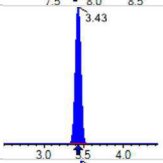
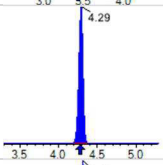
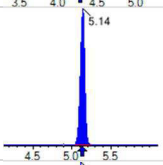
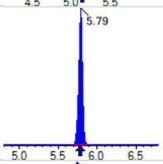
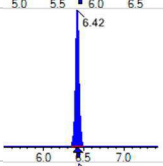
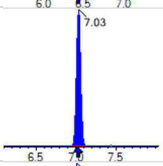
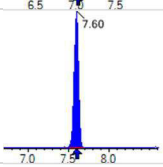
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 147884 (241.0 / 117.0) 242252	(4.02 , 0.94) (N/A , 0.01 , 0.0)	1313.6 1196.4	1.6381 106.4 112.0	17.4058 [20.0000]	87.0%			
5:3FTCA	(341.0 / 236.7) 837093 (341.0 / 217.0) 1471789	(5.57 , 1.08) (N/A , 0.00 , 0.0)	1346.7 1529.3	1.7582 94.0 103.6	19.2035 [20.0000]	96.0%			
7:3FTCA	(441.0 / 317.0) 1524502 (441.0 / 337.0) 1223721	(7.02 , 1.36) (N/A , 0.01 , 0.0)	1569.8 1754.3	0.8027 97.5 99.6	19.2040 [20.0000]	96.0%			
PFEESA	(315.0 / 135.0) 2921624 (315.0 / 83.0) 649003	(5.44 , 1.06) (N/A , 0.00 , 0.1)	3350.1 2128.5	0.2221 92.9 96.5	8.8353 [8.9246]	99.0%			
PFMPA	(229.0 / 85.0) 427083	(3.77 , 0.88) (N/A , 0.01 , 0.0)	4441.8	N/A 0.0 0.0	9.6366 [10.0000]	96.4%			
PFMBA	(279.0 / 85.0) 1385348	(4.57 , 1.06) (N/A , 0.01 , 0.0)	3462.9	N/A 0.0 0.0	9.9882 [10.0000]	99.9%			
NFDHA	(295.0 / 201.0) 1282106 (295.0 / 85.0) 1255533	(5.06 , 0.98) (N/A , 0.01 , 0.1)	2383.0 2521.4	0.9793 100.3 107.7	10.0848 [10.0000]	100.8%			
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) 108038	(3.43 , N/A) (N/A , 0.00 , N/A)	1451.9	N/A	0.9477 [1.0000]	94.8% { 101.7% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 118770	(5.14 , N/A) (N/A , 0.00 , N/A)	6423.9	N/A	0.8606 [1.0000]	86.1% { 97.2% }			
13C4_PFOA_IIS	(417.0 / 372.0) 291356	(6.42 , N/A) (N/A , 0.00 , N/A)	1375.1	N/A	0.9380 [1.0000]	93.8% { 108.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (26)
Acquired: 2023/04/07 - 21:39

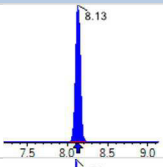
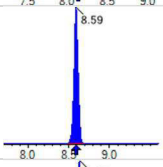
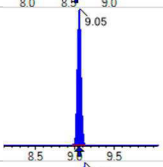
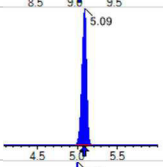
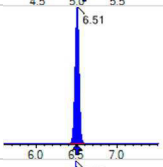
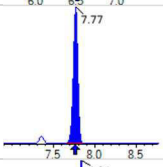
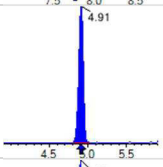
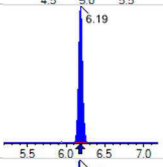
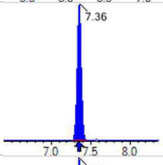
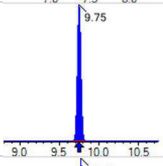
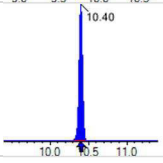
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 270031	(7.03 , N/A) (N/A , 0.00 , N/A)	7408.3	N/A	0.9160 [1.0000]	91.6% { 93.6% }			
13C2_PFDA_IIS	(515.0 / 470.1) 271102	(7.60 , N/A) (N/A , 0.00 , N/A)	5061.2	N/A	0.8745 [1.0000]	87.5% { 90.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 426398	(6.51 , N/A) (N/A , 0.01 , N/A)	5267.4	N/A	0.9506 [1.0000]	95.1% { 99.2% }			
13C4_PFOS_IIS	(503.0 / 79.9) 644984	(7.77 , N/A) (N/A , 0.01 , N/A)	2794.0	N/A	0.9268 [1.0000]	92.7% { 100.1% }			
13C4_PFBA_EIS	(217.0 / 172.0) 931599	(3.43 , N/A) (N/A , 0.01 , N/A)	5239.6	N/A	8.0403 [8.0000]	100.5% { 94.7% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 845549	(4.29 , N/A) (N/A , 0.01 , N/A)	3065.2	N/A	4.5093 [4.0000]	112.7% { 101.3% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 523514	(5.14 , N/A) (N/A , 0.00 , N/A)	2607.4	N/A	2.3038 [2.0000]	115.2% { 110.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 522213	(5.79 , N/A) (N/A , 0.01 , N/A)	4320.3	N/A	2.2949 [2.0000]	114.7% { 103.6% }			
13C8_PFOA_EIS	(421.0 / 376.0) 559351	(6.42 , N/A) (N/A , 0.00 , N/A)	2952.6	N/A	1.8650 [2.0000]	93.2% { 91.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 273432	(7.03 , N/A) (N/A , 0.00 , N/A)	5682.7	N/A	1.0394 [1.0000]	103.9% { 92.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 350762	(7.60 , N/A) (N/A , 0.00 , N/A)	2017.2	N/A	1.1845 [1.0000]	118.5% { 99.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (26)
Acquired: 2023/04/07 - 21:39

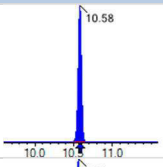
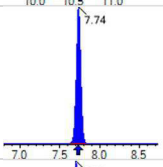
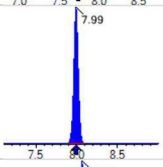
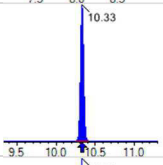
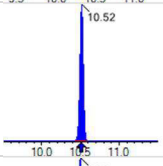
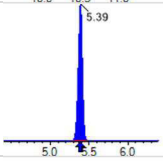
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 330177	(8.13 , N/A) (N/A , 0.00 , N/A)	48441.2	N/A	1.1566 [1.0000]	115.7% { 106.0% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 292024	(8.59 , N/A) (N/A , 0.00 , N/A)	3253.4	N/A	1.1312 [1.0000]	113.1% { 104.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 266114	(9.05 , N/A) (N/A , 0.00 , N/A)	1668.7	N/A	1.0762 [1.0000]	107.6% { 100.3% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1118484	(5.09 , N/A) (N/A , 0.01 , N/A)	2749.4	N/A	2.0084 [2.0000]	100.4% { 94.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 771802	(6.51 , N/A) (N/A , 0.00 , N/A)	3350.6	N/A	1.9362 [2.0000]	96.8% { 99.1% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1592426	(7.77 , N/A) (N/A , 0.01 , N/A)	1592.3	N/A	2.0280 [2.0000]	101.4% { 101.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 223645	(4.91 , N/A) (N/A , 0.00 , N/A)	1024.2	N/A	4.3869 [4.0000]	109.7% { 110.3% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 285379	(6.19 , N/A) (N/A , 0.00 , N/A)	6972.6	N/A	4.2170 [4.0000]	105.4% { 114.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 329449	(7.36 , N/A) (N/A , 0.00 , N/A)	1764.3	N/A	3.9546 [4.0000]	98.9% { 102.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2803442	(9.75 , N/A) (N/A , 0.00 , N/A)	4822.8	N/A	2.1102 [2.0000]	105.5% { 98.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 635559	(10.40 , N/A) (N/A , 0.00 , N/A)	2390.6	N/A	2.1092 [2.0000]	105.5% { 103.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (26)
Acquired: 2023/04/07 - 21:39

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) 534073	(10.58 , N/A) (N/A , 0.00 , N/A)	3364.3	N/A	2.1648 [2.0000]	108.2% { 97.7% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 689353	(7.74 , N/A) (N/A , 0.00 , N/A)	1341.2	N/A	4.1839 [4.0000]	104.6% { 102.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 544961	(7.99 , N/A) (N/A , 0.00 , N/A)	72650.5	N/A	4.0276 [4.0000]	100.7% { 98.3% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2114506	(10.33 , N/A) (N/A , 0.00 , N/A)	1744.6	N/A	21.8424 [20.0000]	109.2% { 102.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2844443	(10.52 , N/A) (N/A , 0.00 , N/A)	1468.1	N/A	22.2050 [20.0000]	111.0% { 104.9% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1028242	(5.39 , N/A) (N/A , 0.00 , N/A)	3239.1	N/A	8.8180 [8.0000]	110.2% { 104.3% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23C0205
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315001
Standard ID:	23C0362	Sequence:	SC01368

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01368-CCV3	PFBA	20.0	20.9	105	ng/mL	+/- 30.00%
	PFPEA	10.0	9.85	98.5	ng/mL	+/- 30.00%
	PFHXA	5.00	4.90	97.9	ng/mL	+/- 30.00%
	PFHPA	5.00	5.39	108	ng/mL	+/- 30.00%
	PFOA	5.00	4.90	97.9	ng/mL	+/- 30.00%
	PFNA	5.00	5.41	108	ng/mL	+/- 30.00%
	PFDA	5.00	5.24	105	ng/mL	+/- 30.00%
	PFUnA	5.00	5.24	105	ng/mL	+/- 30.00%
	PFDOA	5.00	5.22	104	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.92	98.4	ng/mL	+/- 30.00%
	PFTEDA	5.00	5.52	110	ng/mL	+/- 30.00%
	PFBS	4.42	4.65	105	ng/mL	+/- 30.00%
	PFPES	4.70	4.80	102	ng/mL	+/- 30.00%
	PFHXS	4.58	4.53	98.8	ng/mL	+/- 30.00%
	PFHPS	4.78	5.13	107	ng/mL	+/- 30.00%
	PFOS	4.65	4.67	100	ng/mL	+/- 30.00%
	PFNS	4.80	5.17	108	ng/mL	+/- 30.00%
	PFDS	4.82	5.15	107	ng/mL	+/- 30.00%
	PFDOS	4.85	4.94	102	ng/mL	+/- 30.00%
	4:2FTS	18.8	19.3	103	ng/mL	+/- 30.00%
	6:2FTS	19.0	20.5	108	ng/mL	+/- 30.00%
	8:2FTS	19.2	19.8	103	ng/mL	+/- 30.00%
	PFOSA	5.00	5.06	101	ng/mL	+/- 30.00%
	NMeFOSA	20.0	21.9	110	ng/mL	+/- 30.00%
	NEtFOSA	20.0	20.9	104	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	4.53	90.7	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	5.12	102	ng/mL	+/- 30.00%
	NMeFOSE	20.0	19.9	99.6	ng/mL	+/- 30.00%
	NEtFOSE	20.0	19.8	99.2	ng/mL	+/- 30.00%
	HFPO-DA	10.0	10.3	103	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	23C0205
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Instrument ID:	Saphira	Calibration:	2315001
Standard ID:	23C0362	Sequence:	SC01368

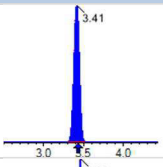
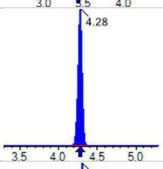
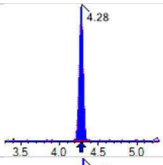
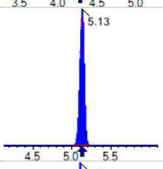
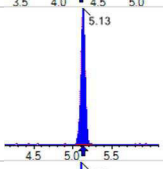
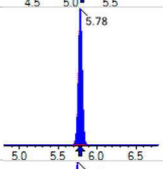
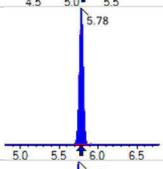
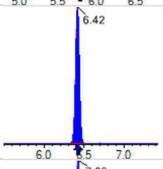
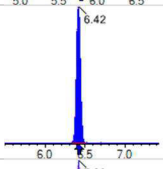
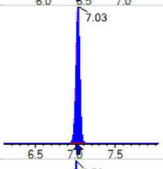
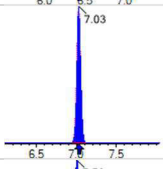
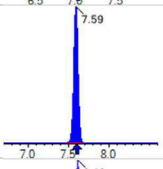
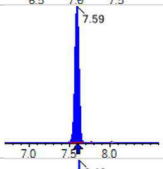
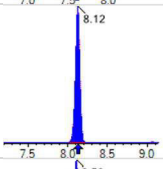
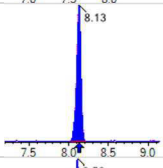
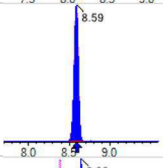
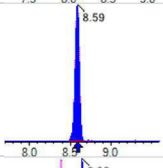
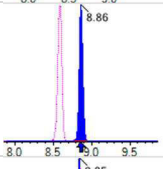
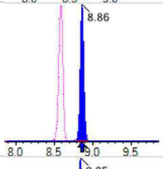
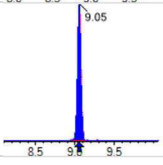
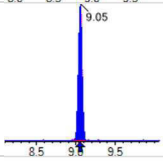
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC01368-CCV3	ADONA	9.45	11.0	116	ng/mL	+/- 30.00%
	PFEESA	8.90	9.91	111	ng/mL	+/- 30.00%
	PFMPA	10.0	9.81	98.1	ng/mL	+/- 30.00%
	PFMBA	10.0	10.0	100	ng/mL	+/- 30.00%
	NFDHA	10.0	11.2	112	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	10.8	115	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	10.4	111	ng/mL	+/- 30.00%
	3:3FTCA	20.0	18.8	94.0	ng/mL	+/- 30.00%
	5:3FTCA	20.0	20.2	101	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (45)
Acquired: 2023/04/08 - 01:44

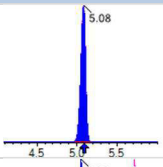
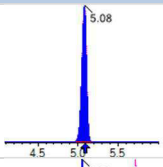
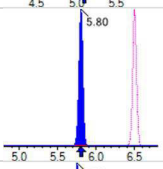
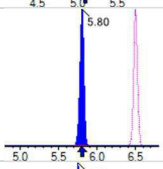
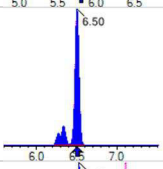
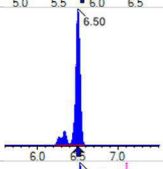
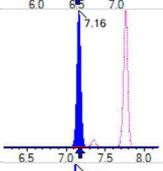
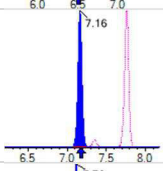
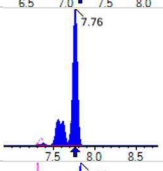
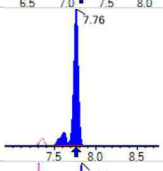
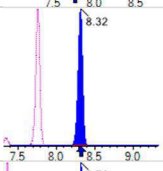
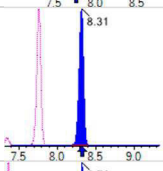
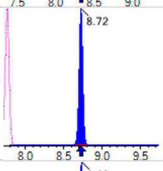
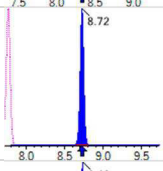
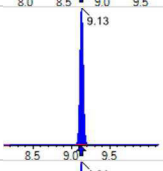
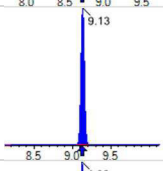
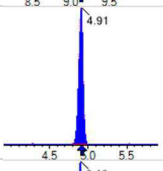
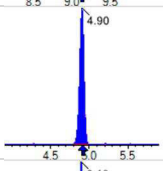
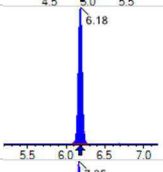
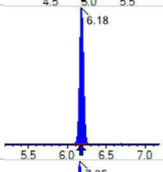
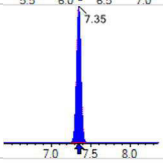
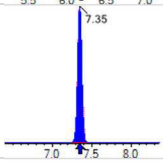
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 1997471	(3.41 , 1.00) (0.00 , N/A , 0.0)	220.0	N/A 0.0 0.0	20.9239 [20.0000]	104.6%			
PFPeA	(263.0 / 219.0) 1791309 (263.0 / 69.0) 21101	(4.28 , 1.00) (0.00 , N/A , -0.1)	4035.9 2702.2	0.0118 95.6 95.8	9.8467 [10.0000]	98.5%			
PFHxA	(313.0 / 269.0) 1033495 (313.0 / 119.0) 113098	(5.13 , 1.00) (0.00 , N/A , 0.0)	2733.1 20528.9	0.1094 108.3 115.8	4.8970 [5.0000]	97.9%			
PFHpA	(363.0 / 319.0) 1056759 (363.0 / 169.0) 314840	(5.78 , 1.00) (0.00 , N/A , 0.0)	14222.2 58671.1	0.2979 100.4 89.6	5.3879 [5.0000]	107.8%			
PFOA	(413.0 / 369.0) 1376139 (413.0 / 169.0) 435875	(6.42 , 1.00) (0.00 , N/A , 0.1)	2297.7 1029787.4	0.3167 94.1 99.2	4.8973 [5.0000]	97.9%			
PFNA	(463.0 / 419.0) 1212562 (463.0 / 169.0) 260452	(7.03 , 1.00) (0.00 , N/A , 0.2)	8895.6 3674.9	0.2148 95.5 101.0	5.4070 [5.0000]	108.1%			
PFDA	(513.0 / 469.0) 1549351 (513.0 / 169.0) 177586	(7.59 , 1.00) (0.00 , N/A , 0.0)	2141.0 1648.8	0.1146 95.2 107.9	5.2434 [5.0000]	104.9%			
PFUnA	(563.0 / 519.0) 1335646 (563.0 / 169.0) 153929	(8.12 , 1.00) (0.00 , N/A , -0.2)	2742.7 1062.7	0.1152 111.6 93.3	5.2441 [5.0000]	104.9%			
PFDoA	(613.0 / 569.0) 1205177 (613.0 / 169.0) 193916	(8.59 , 1.00) (0.00 , N/A , 0.0)	2878.9 1547.8	0.1609 107.7 97.9	5.2235 [5.0000]	104.5%			
PFTrDA	(663.0 / 619.0) 1050808 (663.0 / 169.0) 298458	(8.86 , 1.03) (N/A , 0.00 , 0.0)	2055.6 2043.8	0.2840 110.8 113.5	4.9191 [5.0000]	98.4%			
PFTeDA	(713.0 / 669.0) 1188532 (713.0 / 169.0) 243089	(9.05 , 1.00) (0.00 , N/A , -0.1)	2361.0 963.1	0.2045 102.6 94.3	5.5217 [5.0000]	110.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (45)
Acquired: 2023/04/08 - 01:44

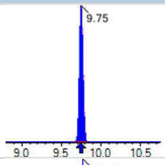
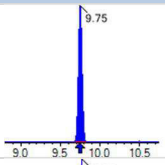
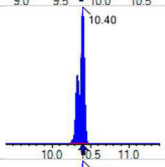
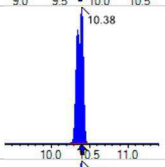
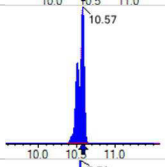
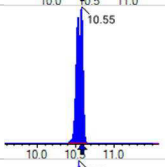
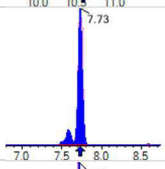
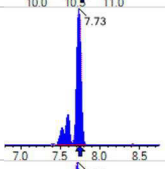
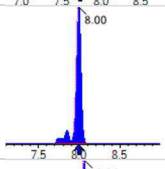
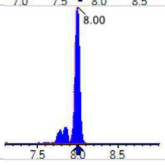
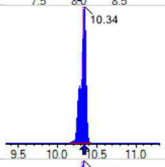
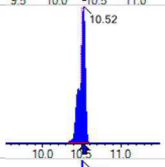
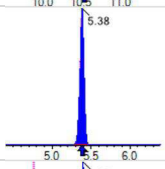
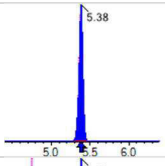
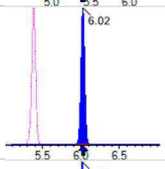
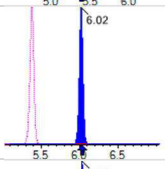
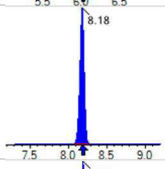
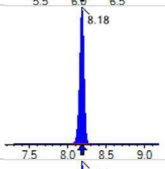
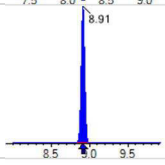
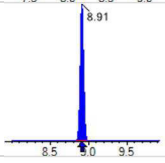
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 1668506 (299.0 / 99.0) 1056129	(5.08 , 1.00) (0.00 , N/A , 0.0)	8576.3 4393.6	0.6330 96.5 95.9	4.6520 [4.4237]	105.2%			
PFPeS	(349.0 / 80.0) 3132644 (349.0 / 99.0) 1197804	(5.80 , 0.89) (N/A , 0.00 , 0.0)	3522.8 3453.6	0.3824 112.5 101.7	4.7986 [4.6919]	102.3%			
PFHxS	(399.0 / 80.0) 2421995 (399.0 / 99.0) 871674	(6.50 , 1.00) (0.00 , N/A , 0.0)	8427.5 14514239.1	0.3599 100.6 99.9	4.5264 [4.5549]	99.4%			
PFHpS	(449.0 / 80.0) 3126885 (449.0 / 99.0) 878561	(7.16 , 0.92) (N/A , 0.00 , 0.0)	4301.2 91575.5	0.2810 99.9 95.1	5.1261 [4.7570]	107.8%			
PFOS	(499.0 / 80.0) 3883581 (499.0 / 99.0) 899624	(7.76 , 1.00) (0.00 , N/A , 0.0)	5303.3 2068.6	0.2316 106.7 99.5	4.6698 [4.6375]	100.7%			
PFNS	(549.0 / 80.0) 3792512 (549.0 / 99.0) 956326	(8.32 , 1.07) (N/A , 0.00 , 0.0)	39559.2 27221531.4	0.2522 99.1 101.7	5.1731 [4.7994]	107.8%			
PFDS	(599.0 / 80.0) 4573194 (599.0 / 99.0) 1083373	(8.72 , 1.12) (N/A , 0.00 , 0.0)	11577.1 9937.2	0.2369 99.1 103.2	5.1499 [4.8155]	106.9%			
PFDoS	(699.0 / 80.0) 3536742 (699.0 / 99.0) 858196	(9.13 , 1.18) (N/A , 0.00 , -0.1)	5261.2 3461.1	0.2427 108.3 107.0	4.9422 [4.8478]	101.9%			
4:2FTS	(327.0 / 307.0) 3092824 (327.0 / 81.0) 1888508	(4.91 , 1.00) (0.00 , N/A , 0.1)	3951.8 2834.0	0.6106 101.2 105.8	19.2853 [18.6906]	103.2%			
6:2FTS	(427.0 / 407.0) 2137839 (427.0 / 81.0) 1513395	(6.18 , 1.00) (0.00 , N/A , 0.1)	3629.7 3053.7	0.7079 99.8 97.9	20.4928 [18.9808]	108.0%			
8:2FTS	(527.0 / 507.0) 2227006 (527.0 / 81.0) 1744591	(7.35 , 1.00) (0.00 , N/A , 0.1)	4349.4 3657.8	0.7834 102.5 106.9	19.8359 [19.1658]	103.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (45)
Acquired: 2023/04/08 - 01:44

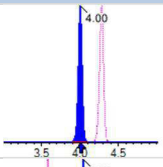
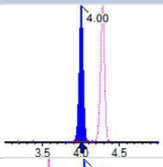
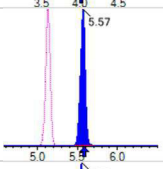
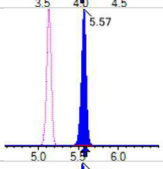
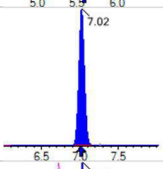
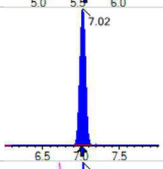
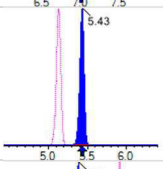
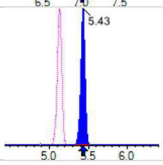
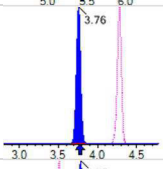
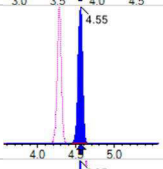
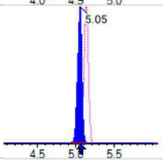
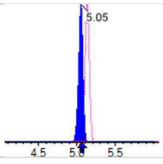
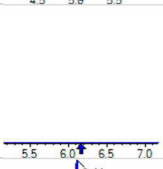
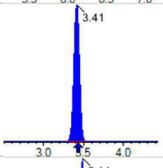
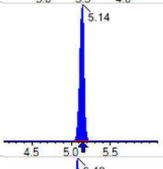
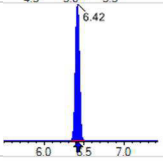
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 5591027 (498.0 / 478.0) 137477	(9.75 , 1.00) (0.00 , N/A , -0.1)	5875.2 1651.2	0.0246 100.7 105.8	5.0590 [5.0000]	101.2%			
NMeFOSA	(512.0 / 219.0) 5296301 (512.0 / 169.0) 4402982	(10.40 , 1.00) (0.00 , N/A , 1.3)	7383.5 7431.3	0.8313 97.9 97.6	21.9397 [20.0000]	109.7%			
NEtFOSA	(526.0 / 219.0) 5985583 (526.0 / 169.0) 7338213	(10.57 , 1.00) (0.00 , N/A , 1.1)	9672.2 8736.6	1.2260 97.3 95.5	20.8798 [20.0000]	104.4%			
NMeFOSAA	(570.0 / 419.0) 731989 (570.0 / 483.0) 328102	(7.73 , 1.00) (0.00 , N/A , 0.0)	3581.4 350.9	0.4482 87.2 100.6	4.5328 [5.0000]	90.7%			
NEtFOSAA	(584.0 / 419.0) 639070 (584.0 / 526.0) 361288	(8.00 , 1.00) (0.01 , N/A , 0.0)	13499.1 2529.0	0.5653 92.5 93.1	5.1242 [5.0000]	102.5%			
NMeFOSE	(616.0 / 59.0) 2001584	(10.34 , 1.00) (0.01 , N/A , 0.0)	1944.3	N/A 0.0 0.0	19.9285 [20.0000]	99.6%			
NEtFOSE	(630.0 / 59.0) 2522439	(10.52 , 1.00) (0.01 , N/A , 0.0)	1253.7	N/A 0.0 0.0	19.8411 [20.0000]	99.2%			
HFPO-DA	(285.0 / 169.0) 1113800 (285.0 / 185.0) 3247476	(5.38 , 1.00) (0.00 , N/A , 0.0)	2200.2 4610.1	2.9157 99.5 106.5	10.3466 [10.0000]	103.5%			
ADONA	(377.0 / 85.0) 4323034 (377.0 / 251.0) 408959	(6.02 , 1.12) (N/A , 0.00 , -0.1)	5102.0 2749.9	0.0946 91.2 99.6	10.9850 [9.4270]	116.5%			
9Cl-Pf3ONS	(531.0 / 351.0) 12566291 (533.0 / 353.0) 3818545	(8.18 , 1.52) (N/A , 0.00 , -0.1)	3788.4 4086.2	0.3039 94.2 95.4	10.7709 [9.3325]	115.4%			
11Cl-PF3OUDS	(631.0 / 451.0) 8030822 (633.0 / 453.0) 2975231	(8.91 , 1.66) (N/A , 0.00 , 0.0)	4975.3 5516.5	0.3705 108.5 106.3	10.4459 [9.4321]	110.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (45)
Acquired: 2023/04/08 - 01:44

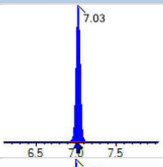
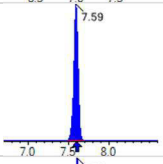
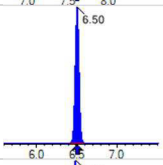
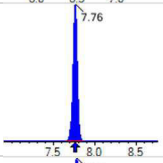
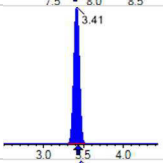
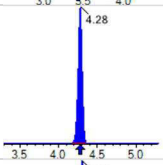
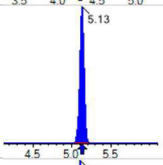
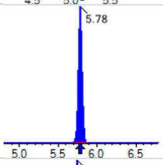
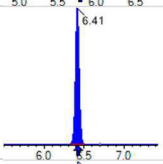
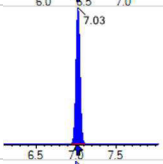
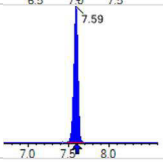
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 146333 (241.0 / 117.0) 235831	(4.00 , 0.93) (N/A , -0.01 , 0.0)	1385.5 1181.4	1.6116 104.7 110.2	18.8036 [20.0000]	94.0%			
5:3FTCA	(341.0 / 236.7) 736672 (341.0 / 217.0) 1376853	(5.57 , 1.09) (N/A , 0.00 , 0.0)	2099.8 1678.4	1.8690 99.9 110.2	20.1739 [20.0000]	100.9%			
7:3FTCA	(441.0 / 317.0) 1386954 (441.0 / 337.0) 1198893	(7.02 , 1.37) (N/A , 0.01 , -0.1)	1642.0 1622.1	0.8644 105.0 107.2	20.8561 [20.0000]	104.3%			
PFEESA	(315.0 / 135.0) 2744062 (315.0 / 83.0) 653188	(5.43 , 1.06) (N/A , 0.00 , 0.0)	3735.9 1947.3	0.2380 99.5 103.4	9.9061 [8.9246]	111.0%			
PFMPA	(229.0 / 85.0) 398115	(3.76 , 0.88) (N/A , -0.01 , 0.0)	4264.5	N/A 0.0 0.0	9.8073 [10.0000]	98.1%			
PFMBA	(279.0 / 85.0) 1270399	(4.55 , 1.06) (N/A , -0.01 , 0.0)	3835.6	N/A 0.0 0.0	9.9999 [10.0000]	100.0%			
NFDHA	(295.0 / 201.0) 1192895 (295.0 / 85.0) 1132066	(5.05 , 0.98) (N/A , 0.00 , 0.0)	3011.5 2532.2	0.9490 97.2 104.4	11.2010 [10.0000]	112.0%			
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) 98913	(3.41 , N/A) (N/A , -0.01 , N/A)	1344.4	N/A	0.8676 [1.0000]	86.8% { 93.1% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 90015	(5.14 , N/A) (N/A , 0.00 , N/A)	2541172.1	N/A	0.6523 [1.0000]	65.2% { 73.7% }			IS1,
13C4_PFOA_IIS	(417.0 / 372.0) 257654	(6.42 , N/A) (N/A , 0.00 , N/A)	27009.1	N/A	0.8295 [1.0000]	83.0% { 95.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (45)
Acquired: 2023/04/08 - 01:44

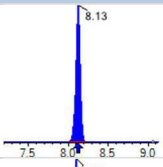
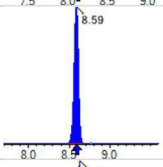
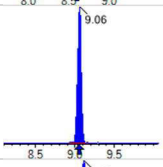
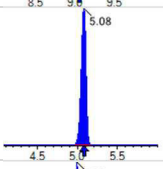
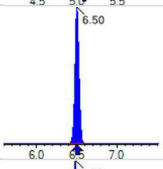
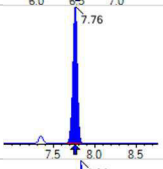
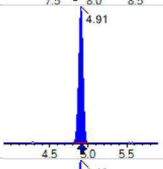
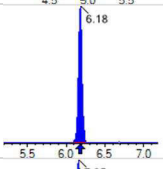
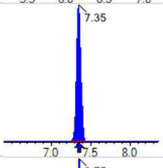
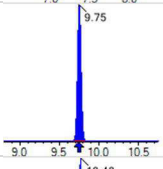
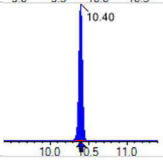
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 257267	(7.03 , N/A) (N/A , 0.00 , N/A)	11085.1	N/A	0.8727 [1.0000]	87.3% { 89.2% }			
13C2_PFDA_IIS	(515.0 / 470.1) 291217	(7.59 , N/A) (N/A , 0.00 , N/A)	42062.6	N/A	0.9394 [1.0000]	93.9% { 96.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 385130	(6.50 , N/A) (N/A , 0.00 , N/A)	4478.3	N/A	0.8586 [1.0000]	85.9% { 89.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 620058	(7.76 , N/A) (N/A , 0.00 , N/A)	1519.2	N/A	0.8910 [1.0000]	89.1% { 96.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 878455	(3.41 , N/A) (N/A , -0.01 , N/A)	5046.3	N/A	8.2810 [8.0000]	103.5% { 89.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 774481	(4.28 , N/A) (N/A , 0.00 , N/A)	3408.9	N/A	5.4498 [4.0000]	136.2% { 92.8% }			S2,
13C5_PFHxA_EIS	(318.0 / 273.0) 438550	(5.13 , N/A) (N/A , 0.00 , N/A)	1933.2	N/A	2.5464 [2.0000]	127.3% { 92.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 457257	(5.78 , N/A) (N/A , 0.00 , N/A)	4162.8	N/A	2.6513 [2.0000]	132.6% { 90.7% }			S2,
13C8_PFOA_EIS	(421.0 / 376.0) 565841	(6.41 , N/A) (N/A , 0.00 , N/A)	2614.0	N/A	2.1334 [2.0000]	106.7% { 92.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 248171	(7.03 , N/A) (N/A , 0.00 , N/A)	6412.0	N/A	0.9902 [1.0000]	99.0% { 83.9% }			
13C6_PFDA_EIS	(519.0 / 474.0) 298361	(7.59 , N/A) (N/A , 0.00 , N/A)	1431.9	N/A	0.9380 [1.0000]	93.8% { 84.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (45)
Acquired: 2023/04/08 - 01:44

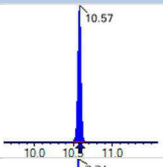
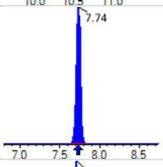
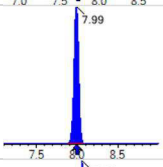
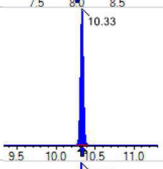
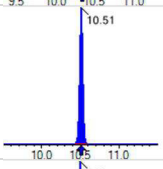
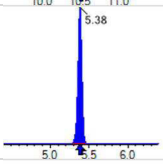
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 284282	(8.13 , N/A) (N/A , 0.00 , N/A)	4066.5	N/A	0.9270 [1.0000]	92.7% { 91.3% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 265502	(8.59 , N/A) (N/A , 0.00 , N/A)	42193.3	N/A	0.9574 [1.0000]	95.7% { 95.2% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 240045	(9.06 , N/A) (N/A , 0.01 , N/A)	1742.0	N/A	0.9037 [1.0000]	90.4% { 90.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1004569	(5.08 , N/A) (N/A , 0.00 , N/A)	2981.3	N/A	1.9971 [2.0000]	99.9% { 84.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 730341	(6.50 , N/A) (N/A , 0.00 , N/A)	3288.8	N/A	2.0285 [2.0000]	101.4% { 93.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1462313	(7.76 , N/A) (N/A , 0.00 , N/A)	1781.2	N/A	1.9372 [2.0000]	96.9% { 92.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 209060	(4.91 , N/A) (N/A , 0.00 , N/A)	1228.6	N/A	4.5402 [4.0000]	113.5% { 103.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 270607	(6.18 , N/A) (N/A , 0.00 , N/A)	2073.4	N/A	4.4272 [4.0000]	110.7% { 108.1% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 317243	(7.35 , N/A) (N/A , 0.00 , N/A)	3716.7	N/A	4.2162 [4.0000]	105.4% { 98.4% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2602858	(9.75 , N/A) (N/A , 0.01 , N/A)	5230.5	N/A	2.0380 [2.0000]	101.9% { 91.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 589098	(10.40 , N/A) (N/A , 0.00 , N/A)	2662.4	N/A	2.0336 [2.0000]	101.7% { 95.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (45)
Acquired: 2023/04/08 - 01:44

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) 529243	(10.57 , N/A) (N/A , 0.00 , N/A)	2720.2	N/A	2.2314 [2.0000]	111.6% { 96.8% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 781547	(7.74 , N/A) (N/A , 0.00 , N/A)	3165.4	N/A	4.9341 [4.0000]	123.4% { 116.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 566752	(7.99 , N/A) (N/A , 0.00 , N/A)	965989.7	N/A	4.3570 [4.0000]	108.9% { 102.2% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1935978	(10.33 , N/A) (N/A , 0.00 , N/A)	2064.8	N/A	20.8021 [20.0000]	104.0% { 94.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2598051	(10.51 , N/A) (N/A , 0.00 , N/A)	1526.4	N/A	21.0969 [20.0000]	105.5% { 95.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 904264	(5.38 , N/A) (N/A , 0.00 , N/A)	2107.9	N/A	10.2320 [8.0000]	127.9% { 91.7% }			

INTENTIONALLY LEFT BLANK

INTENTIONALLY LEFT BLANK

INTENTIONALLY LEFT BLANK

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01366
Calibration: 2315001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC01366-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	0.00	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: SC01366
Calibration: 2315001

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

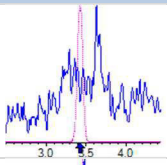
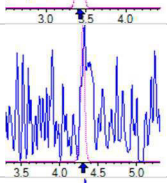
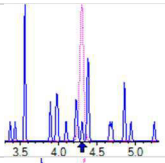
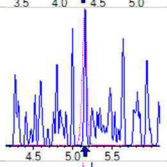
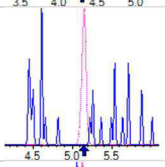
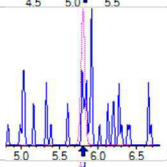
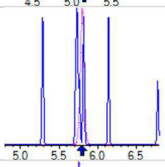
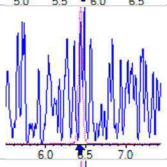
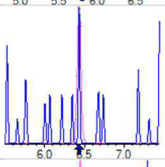
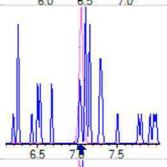
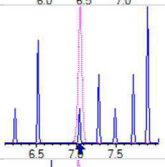
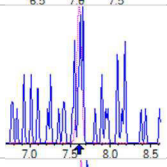
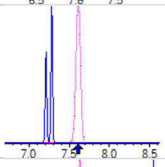
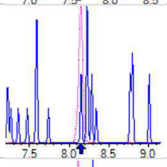
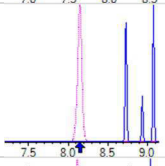
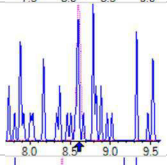
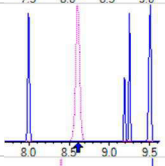
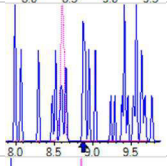
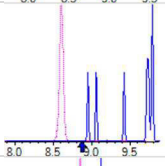
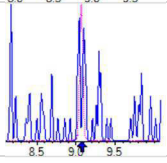
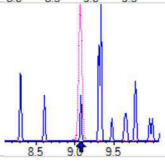
Lab Sample ID	Analyte	Found	Units	RL	C
SC01366-ICB1	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.15	ng/mL		
	13C5-PFPEA	4.53	ng/mL		
	13C5-PFHXA	2.17	ng/mL		
	13C4-PFHPA	2.22	ng/mL		
	13C8-PFOA	1.94	ng/mL		
	13C9-PFNA	0.984	ng/mL		
	13C6-PFDA	1.04	ng/mL		
	13C7-PFUnA	1.10	ng/mL		
	13C2-PFDOA	1.04	ng/mL		
	13C2-PFTEDA	1.07	ng/mL		
	13C3-PFBS	2.08	ng/mL		
	13C3-PFHXS	1.98	ng/mL		
	13C8-PFOS	1.96	ng/mL		
	13C2-4:2FTS	4.37	ng/mL		
	13C2-6:2FTS	4.29	ng/mL		
	13C2-8:2FTS	3.96	ng/mL		
	13C8-PFOSA	1.99	ng/mL		
	D3-NMEFOSA	1.89	ng/mL		
	D5-NETFOSA	2.05	ng/mL		
	D3-NMEFOSAA	3.91	ng/mL		
	D5-NETFOSAA	3.93	ng/mL		
	D7-NMEFOSE	20.2	ng/mL		
	D9-NETFOSE	21.0	ng/mL		
	13C3-HFPO-DA	8.47	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (9)
Acquired: 2023/04/07 - 15:38

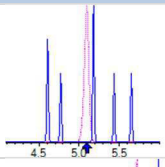
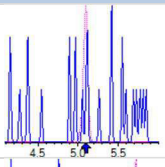
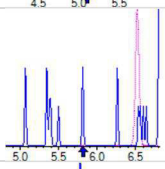
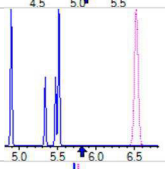
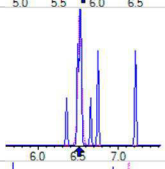
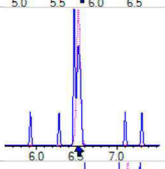
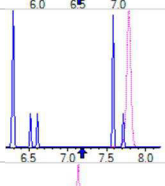
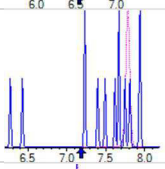
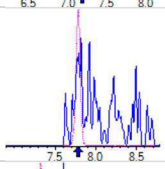
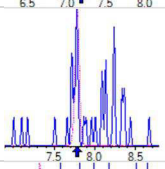
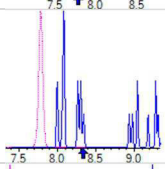
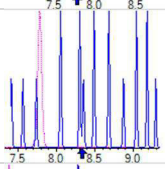
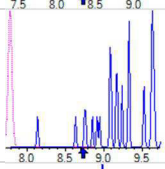
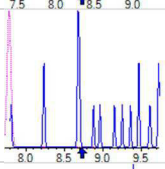
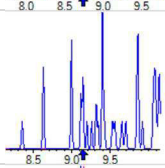
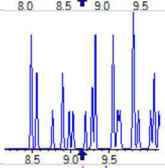
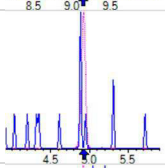
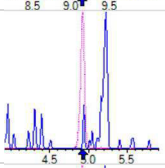
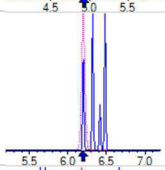
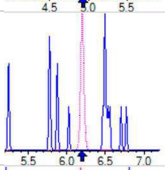
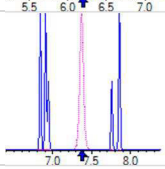
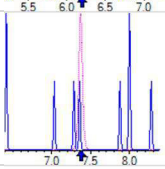
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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.: SC01366-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (9)
Acquired: 2023/04/07 - 15:38

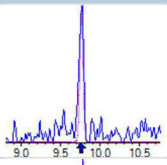
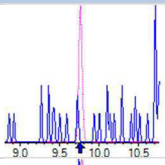
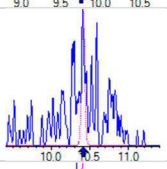
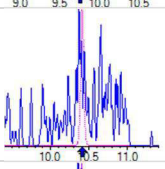
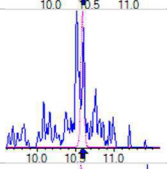
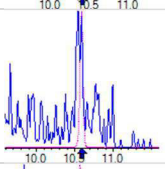
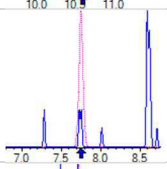
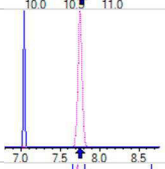
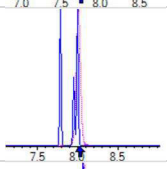
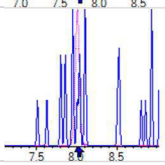
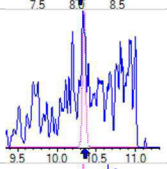
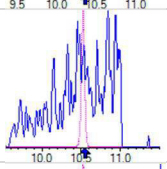
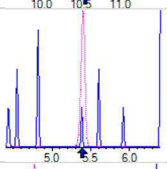
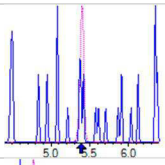
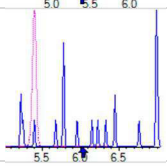
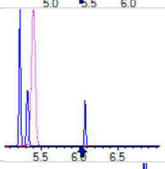
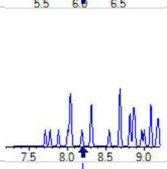
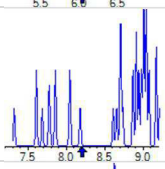
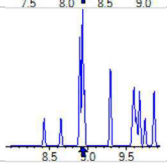
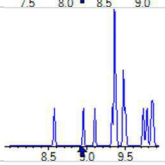
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC01366-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (9)
Acquired: 2023/04/07 - 15:38

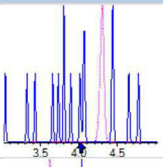
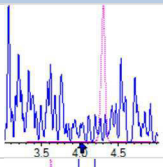
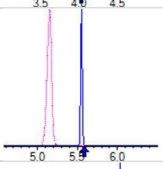
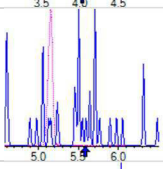
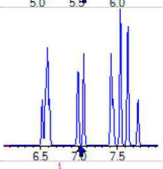
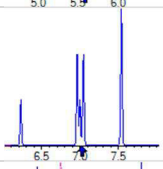
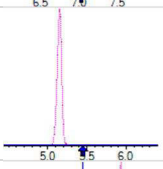
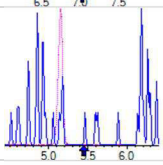
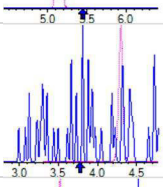
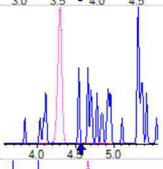
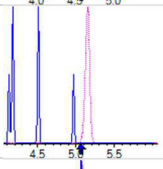
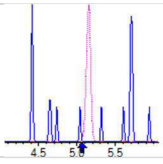
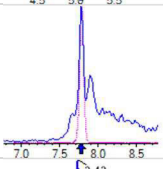
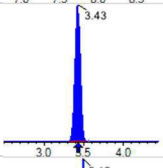
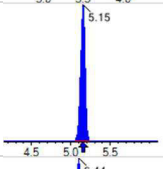
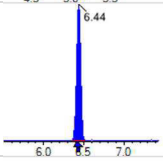
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (9)
Acquired: 2023/04/07 - 15:38

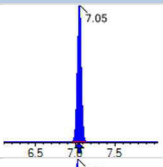
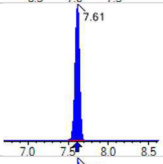
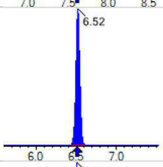
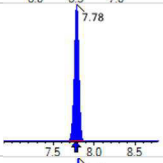
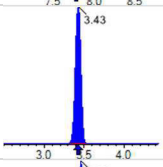
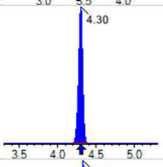
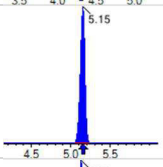
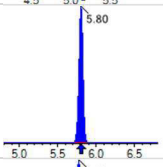
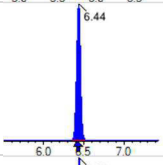
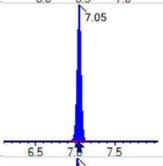
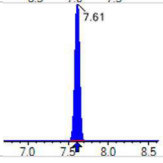
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 128455	(3.43 , N/A) (N/A , 0.00 , N/A)	1367.6	N/A	1.1267 [1.0000]	112.7% { 119.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 127300	(5.15 , N/A) (N/A , 0.00 , N/A)	240837.2	N/A	0.9225 [1.0000]	92.2% { 110.5% }			
13C4_PFOA_IIS	(417.0 / 372.0) 329657	(6.44 , N/A) (N/A , 0.01 , N/A)	1435.0	N/A	1.0613 [1.0000]	106.1% { 118.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (9)
Acquired: 2023/04/07 - 15:38

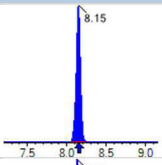
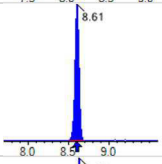
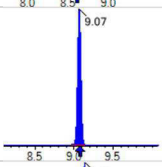
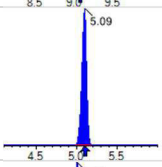
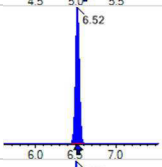
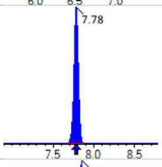
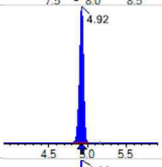
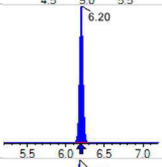
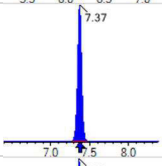
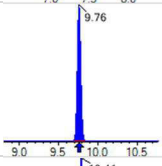
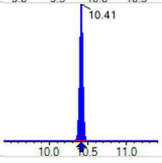
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 330157	(7.05 , N/A) (N/A , 0.01 , N/A)	1529.6	N/A	1.1199 [1.0000]	112.0% { 121.0% }			
13C2_PFDA_IIS	(515.0 / 470.1) 312869	(7.61 , N/A) (N/A , 0.01 , N/A)	3155416.5	N/A	1.0093 [1.0000]	100.9% { 114.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 456621	(6.52 , N/A) (N/A , 0.01 , N/A)	3146.2	N/A	1.0179 [1.0000]	101.8% { 108.5% }			
13C4_PFOS_IIS	(503.0 / 79.9) 768965	(7.78 , N/A) (N/A , 0.01 , N/A)	1546.4	N/A	1.1050 [1.0000]	110.5% { 126.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1123300	(3.43 , N/A) (N/A , 0.00 , N/A)	4907.9	N/A	8.1538 [8.0000]	101.9% { 118.9% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 910213	(4.30 , N/A) (N/A , 0.00 , N/A)	3981.2	N/A	4.5289 [4.0000]	113.2% { 109.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 528073	(5.15 , N/A) (N/A , 0.00 , N/A)	2537.5	N/A	2.1682 [2.0000]	108.4% { 108.5% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 541759	(5.80 , N/A) (N/A , 0.01 , N/A)	2297.9	N/A	2.2212 [2.0000]	111.1% { 108.6% }			
13C8_PFOA_EIS	(421.0 / 376.0) 657259	(6.44 , N/A) (N/A , 0.01 , N/A)	10875.6	N/A	1.9368 [2.0000]	96.8% { 117.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 316600	(7.05 , N/A) (N/A , 0.01 , N/A)	647.7	N/A	0.9844 [1.0000]	98.4% { 117.2% }			
13C6_PFDA_EIS	(519.0 / 474.0) 356339	(7.61 , N/A) (N/A , 0.01 , N/A)	38728.5	N/A	1.0427 [1.0000]	104.3% { 107.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (9)
Acquired: 2023/04/07 - 15:38

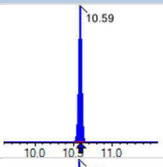
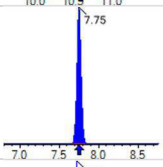
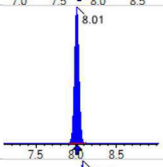
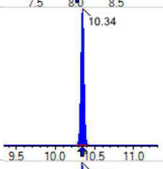
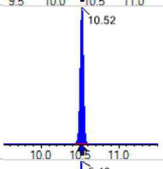
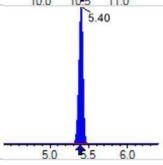
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 362690	(8.15 , N/A) (N/A , 0.00 , N/A)	2525.3	N/A	1.1009 [1.0000]	110.1% { 114.3% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 309493	(8.61 , N/A) (N/A , 0.00 , N/A)	1502.3	N/A	1.0388 [1.0000]	103.9% { 116.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 306587	(9.07 , N/A) (N/A , 0.00 , N/A)	2272.5	N/A	1.0744 [1.0000]	107.4% { 108.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1240931	(5.09 , N/A) (N/A , 0.00 , N/A)	2490.7	N/A	2.0808 [2.0000]	104.0% { 114.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 846088	(6.52 , N/A) (N/A , 0.01 , N/A)	3773.7	N/A	1.9821 [2.0000]	99.1% { 105.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1830807	(7.78 , N/A) (N/A , 0.01 , N/A)	2554.0	N/A	1.9557 [2.0000]	97.8% { 116.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 238445	(4.92 , N/A) (N/A , 0.00 , N/A)	1608.0	N/A	4.3676 [4.0000]	109.2% { 121.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 310660	(6.20 , N/A) (N/A , 0.01 , N/A)	11382.6	N/A	4.2867 [4.0000]	107.2% { 117.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 353452	(7.37 , N/A) (N/A , 0.01 , N/A)	10014.3	N/A	3.9619 [4.0000]	99.0% { 107.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3152224	(9.76 , N/A) (N/A , 0.00 , N/A)	3227.0	N/A	1.9902 [2.0000]	99.5% { 115.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 677573	(10.41 , N/A) (N/A , 0.00 , N/A)	2614.2	N/A	1.8861 [2.0000]	94.3% { 111.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01366-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07A (9)
Acquired: 2023/04/07 - 15:38

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) 603975	(10.59 , N/A) (N/A , 0.00 , N/A)	2997.1	N/A	2.0534 [2.0000]	102.7% { 115.9% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 767144	(7.75 , N/A) (N/A , 0.00 , N/A)	3012.1	N/A	3.9053 [4.0000]	97.6% { 117.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 634232	(8.01 , N/A) (N/A , 0.00 , N/A)	6503.8	N/A	3.9316 [4.0000]	98.3% { 117.4% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2326788	(10.34 , N/A) (N/A , 0.00 , N/A)	1849.6	N/A	20.1600 [20.0000]	100.8% { 118.5% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3205825	(10.52 , N/A) (N/A , 0.00 , N/A)	1559.5	N/A	20.9912 [20.0000]	105.0% { 123.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1058863	(5.40 , N/A) (N/A , 0.01 , N/A)	1877.9	N/A	8.4721 [8.0000]	105.9% { 103.0% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01368
Calibration: 2315001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC01368-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: SC01368
Calibration: 2315001

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

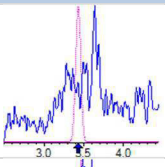
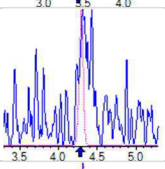
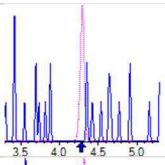
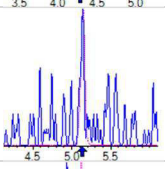
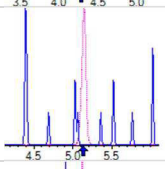
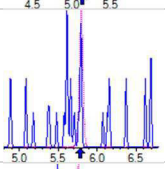
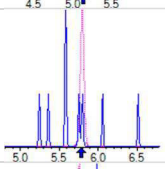
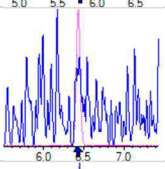
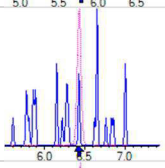
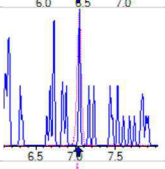
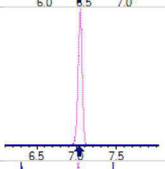
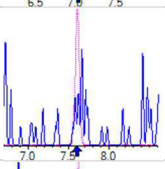
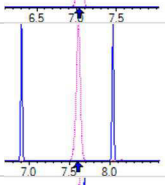
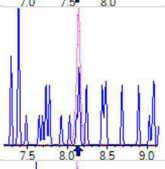
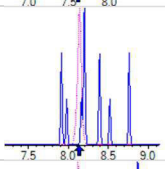
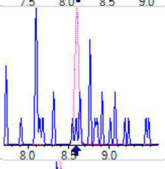
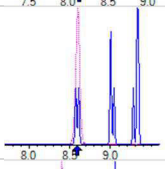
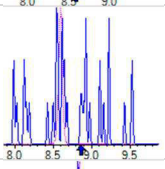
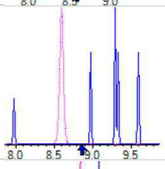
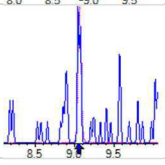
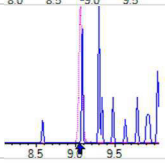
Lab Sample ID	Analyte	Found	Units	RL	C
SC01368-CCB1	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.20	ng/mL		
	13C5-PFPEA	4.83	ng/mL		
	13C5-PFHXA	2.28	ng/mL		
	13C4-PFHPA	2.36	ng/mL		
	13C8-PFOA	2.05	ng/mL		
	13C9-PFNA	1.00	ng/mL		
	13C6-PFDA	1.11	ng/mL		
	13C7-PFUnA	1.20	ng/mL		
	13C2-PFDOA	1.13	ng/mL		
	13C2-PFTEDA	1.15	ng/mL		
	13C3-PFBS	2.06	ng/mL		
	13C3-PFHXS	1.96	ng/mL		
	13C8-PFOS	1.84	ng/mL		
	13C2-4:2FTS	4.51	ng/mL		
	13C2-6:2FTS	3.90	ng/mL		
	13C2-8:2FTS	3.69	ng/mL		
	13C8-PFOSA	1.98	ng/mL		
	D3-NMEFOSA	1.85	ng/mL		
	D5-NETFOSA	2.07	ng/mL		
	D3-NMEFOSAA	3.63	ng/mL		
	D5-NETFOSAA	3.65	ng/mL		
	D7-NMEFOSE	19.5	ng/mL		
	D9-NETFOSE	19.9	ng/mL		
	13C3-HFPO-DA	9.11	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (1)
Acquired: 2023/04/07 - 16:17

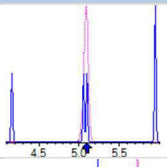
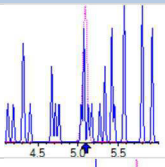
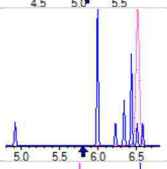
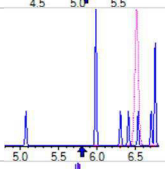
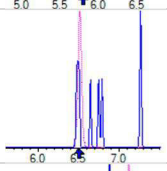
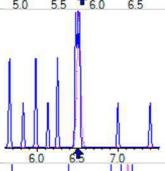
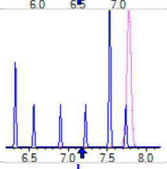
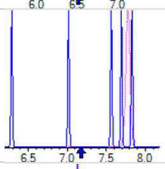
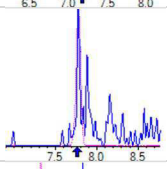
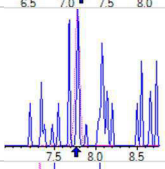
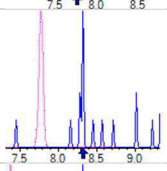
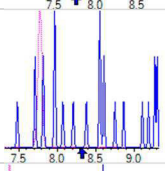
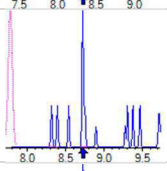
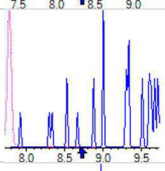
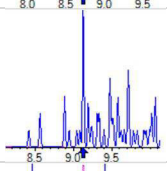
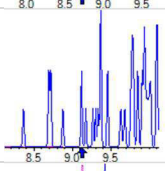
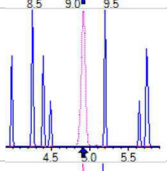
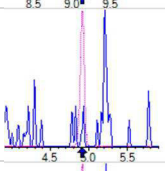
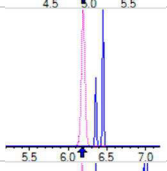
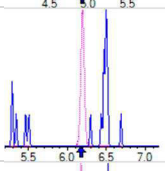
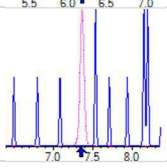
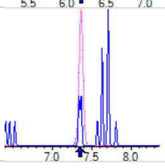
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (1)
Acquired: 2023/04/07 - 16:17

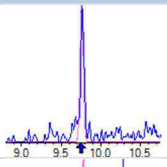
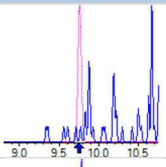
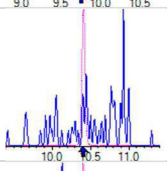
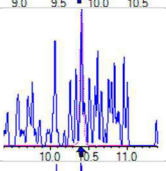
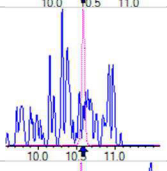
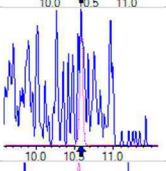
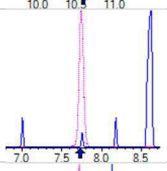
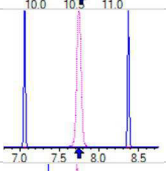
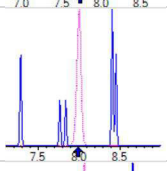
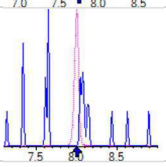
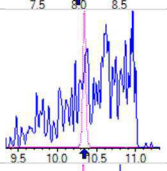
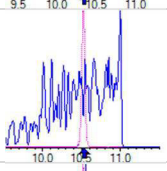
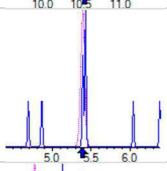
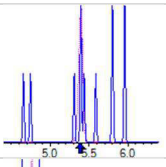
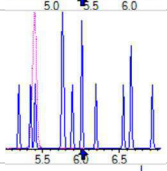
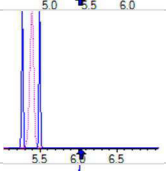
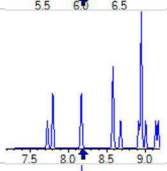
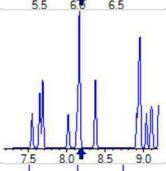
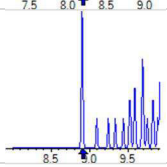
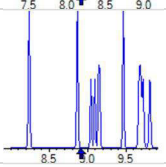
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A 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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (1)
Acquired: 2023/04/07 - 16:17

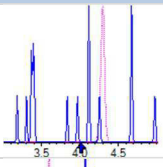
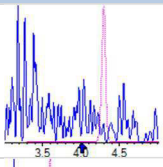
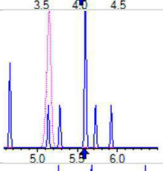
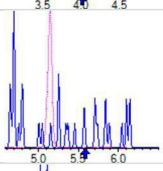
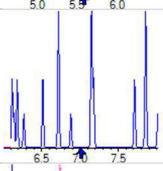
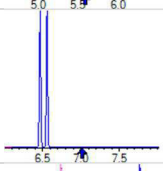
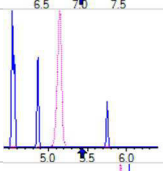
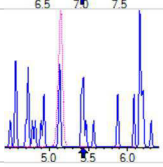
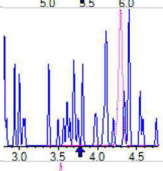
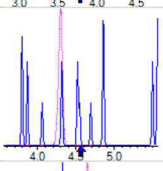
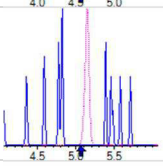
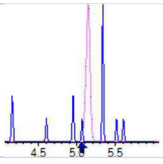
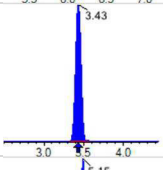
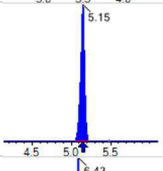
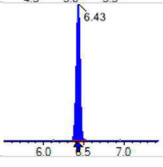
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A 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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (1)
Acquired: 2023/04/07 - 16:17

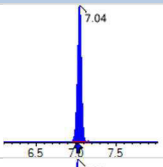
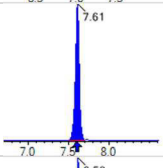
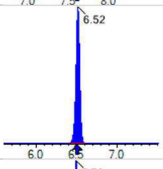
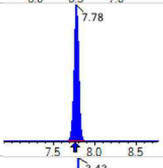
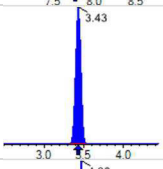
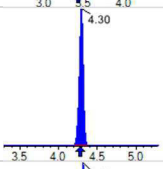
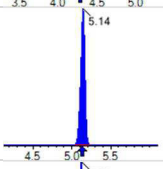
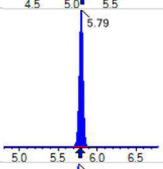
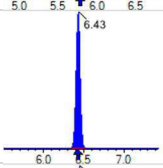
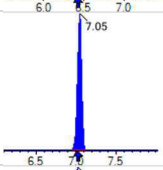
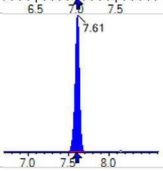
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 125586	(3.43 , N/A) (N/A , 0.01 , N/A)	1616.3	N/A	1.1016 [1.0000]	110.2% { 118.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 121275	(5.15 , N/A) (N/A , 0.01 , N/A)	1779.7	N/A	0.8788 [1.0000]	87.9% { 99.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 289439	(6.43 , N/A) (N/A , 0.01 , N/A)	4218.6	N/A	0.9319 [1.0000]	93.2% { 107.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (1)
Acquired: 2023/04/07 - 16:17

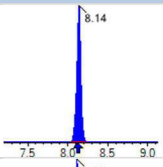
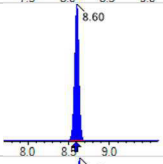
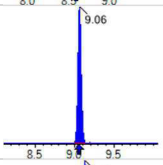
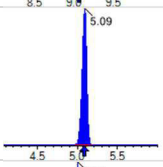
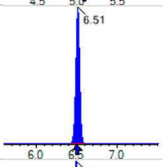
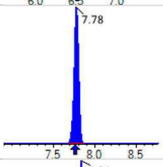
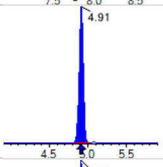
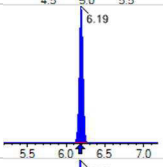
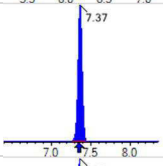
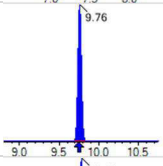
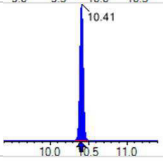
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 313878	(7.04 , N/A) (N/A , 0.02 , N/A)	284.6	N/A	1.0647 [1.0000]	106.5% { 108.8% }			
13C2_PFDA_IIS	(515.0 / 470.1) 284958	(7.61 , N/A) (N/A , 0.01 , N/A)	195245.8	N/A	0.9192 [1.0000]	91.9% { 94.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 463101	(6.52 , N/A) (N/A , 0.02 , N/A)	3652.3	N/A	1.0324 [1.0000]	103.2% { 107.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 777391	(7.78 , N/A) (N/A , 0.01 , N/A)	2119.8	N/A	1.1171 [1.0000]	111.7% { 120.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1104108	(3.43 , N/A) (N/A , 0.01 , N/A)	4656.9	N/A	8.1976 [8.0000]	102.5% { 112.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 925715	(4.30 , N/A) (N/A , 0.01 , N/A)	3073.6	N/A	4.8349 [4.0000]	120.9% { 110.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 528664	(5.14 , N/A) (N/A , 0.01 , N/A)	2484.7	N/A	2.2784 [2.0000]	113.9% { 111.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 549318	(5.79 , N/A) (N/A , 0.01 , N/A)	2513.8	N/A	2.3641 [2.0000]	118.2% { 108.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 611895	(6.43 , N/A) (N/A , 0.01 , N/A)	2551.8	N/A	2.0537 [2.0000]	102.7% { 100.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 306909	(7.05 , N/A) (N/A , 0.02 , N/A)	9248.8	N/A	1.0037 [1.0000]	100.4% { 103.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 345484	(7.61 , N/A) (N/A , 0.01 , N/A)	2608.8	N/A	1.1100 [1.0000]	111.0% { 97.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (1)
Acquired: 2023/04/07 - 16:17

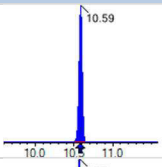
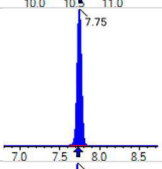
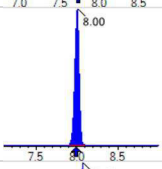
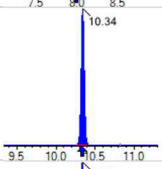
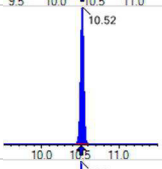
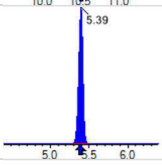
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 359971	(8.14 , N/A) (N/A , 0.01 , N/A)	3236.4	N/A	1.1996 [1.0000]	120.0% { 115.6% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 306570	(8.60 , N/A) (N/A , 0.01 , N/A)	1987.6	N/A	1.1298 [1.0000]	113.0% { 109.9% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 299588	(9.06 , N/A) (N/A , 0.01 , N/A)	2091.6	N/A	1.1527 [1.0000]	115.3% { 112.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1243245	(5.09 , N/A) (N/A , 0.01 , N/A)	2843.5	N/A	2.0555 [2.0000]	102.8% { 105.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 850540	(6.51 , N/A) (N/A , 0.01 , N/A)	6238.8	N/A	1.9646 [2.0000]	98.2% { 109.2% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1743639	(7.78 , N/A) (N/A , 0.02 , N/A)	2167.1	N/A	1.8424 [2.0000]	92.1% { 110.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 249929	(4.91 , N/A) (N/A , 0.01 , N/A)	1266.7	N/A	4.5139 [4.0000]	112.8% { 123.3% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 286499	(6.19 , N/A) (N/A , 0.01 , N/A)	2646.0	N/A	3.8980 [4.0000]	97.5% { 114.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 334298	(7.37 , N/A) (N/A , 0.01 , N/A)	50106.7	N/A	3.6948 [4.0000]	92.4% { 103.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3170797	(9.76 , N/A) (N/A , 0.01 , N/A)	4710.1	N/A	1.9802 [2.0000]	99.0% { 111.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 671854	(10.41 , N/A) (N/A , 0.01 , N/A)	2981.2	N/A	1.8499 [2.0000]	92.5% { 109.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (1)
Acquired: 2023/04/07 - 16:17

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) 616507	(10.59 , N/A) (N/A , 0.01 , N/A)	3433.8	N/A	2.0733 [2.0000]	103.7% { 112.7% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 720855	(7.75 , N/A) (N/A , 0.01 , N/A)	2837.1	N/A	3.6299 [4.0000]	90.7% { 107.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 596044	(8.00 , N/A) (N/A , 0.02 , N/A)	74570528.5	N/A	3.6549 [4.0000]	91.4% { 107.5% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2270802	(10.34 , N/A) (N/A , 0.01 , N/A)	1652.3	N/A	19.4617 [20.0000]	97.3% { 110.4% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3074655	(10.52 , N/A) (N/A , 0.01 , N/A)	2466.6	N/A	19.9141 [20.0000]	99.6% { 113.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1084188	(5.39 , N/A) (N/A , 0.01 , N/A)	3333.3	N/A	9.1057 [8.0000]	113.8% { 110.0% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01368
Calibration: 2315001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC01368-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: SC01368
Calibration: 2315001

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

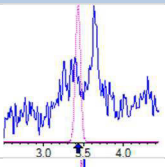
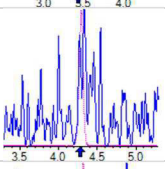
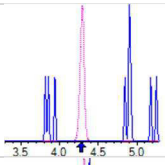
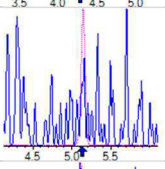
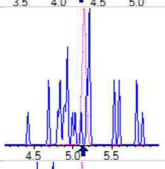
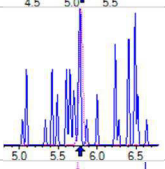
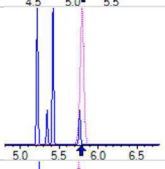
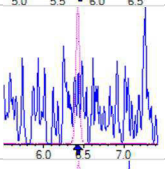
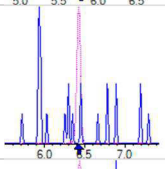
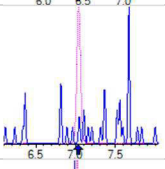
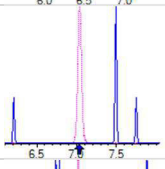
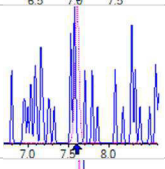
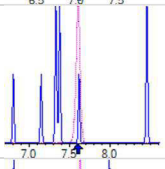
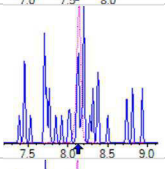
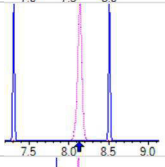
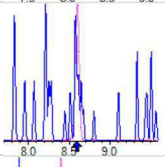
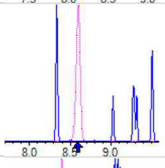
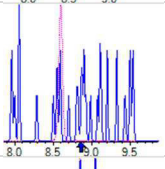
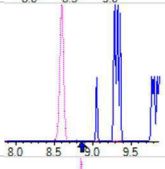
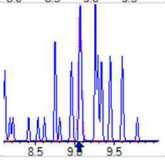
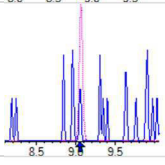
Lab Sample ID	Analyte	Found	Units	RL	C
SC01368-CCB2	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.28	ng/mL		
	13C5-PFPEA	4.72	ng/mL		
	13C5-PFHXA	2.37	ng/mL		
	13C4-PFHPA	2.42	ng/mL		
	13C8-PFOA	2.14	ng/mL		
	13C9-PFNA	1.00	ng/mL		
	13C6-PFDA	1.07	ng/mL		
	13C7-PFUnA	0.993	ng/mL		
	13C2-PFDOA	0.955	ng/mL		
	13C2-PFTEDA	1.01	ng/mL		
	13C3-PFBS	2.23	ng/mL		
	13C3-PFHXS	2.09	ng/mL		
	13C8-PFOS	1.98	ng/mL		
	13C2-4:2FTS	5.14	ng/mL		
	13C2-6:2FTS	4.23	ng/mL		
	13C2-8:2FTS	3.98	ng/mL		
	13C8-PFOSA	2.03	ng/mL		
	D3-NMEFOSA	1.96	ng/mL		
	D5-NETFOSA	2.15	ng/mL		
	D3-NMEFOSAA	4.24	ng/mL		
	D5-NETFOSAA	3.86	ng/mL		
	D7-NMEFOSE	19.7	ng/mL		
	D9-NETFOSE	20.6	ng/mL		
	13C3-HFPO-DA	9.02	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (6)
Acquired: 2023/04/07 - 17:21

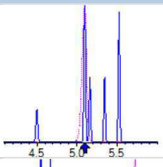
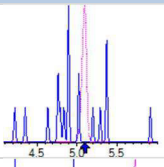
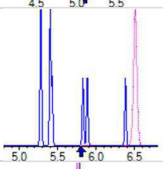
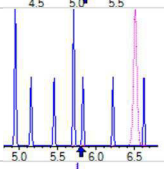
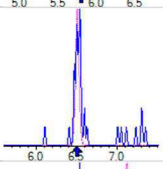
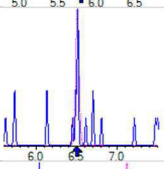
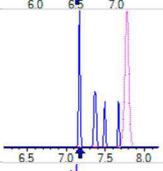
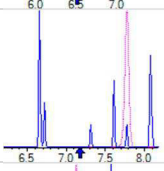
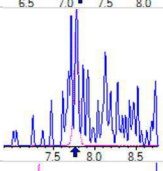
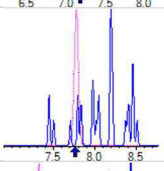
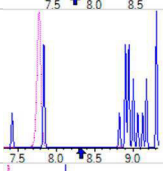
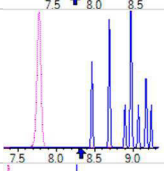
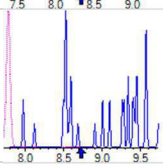
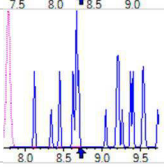
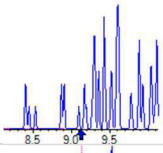
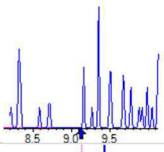
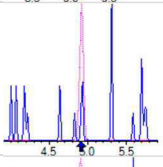
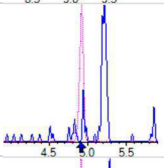
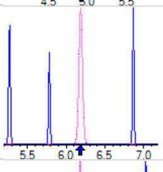
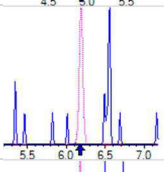
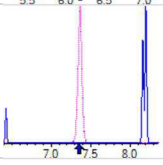
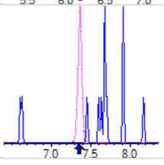
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (6)
Acquired: 2023/04/07 - 17:21

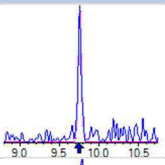
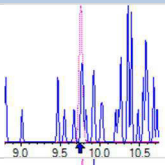
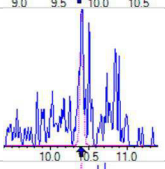
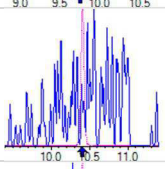
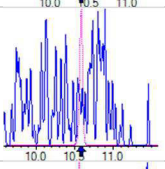
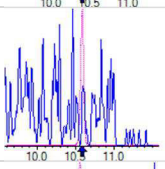
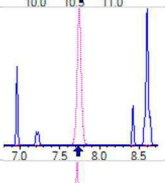
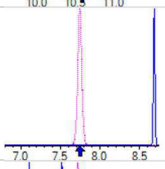
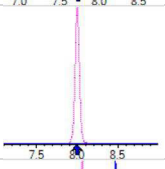
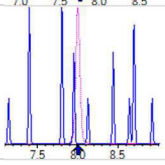
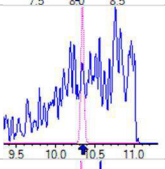
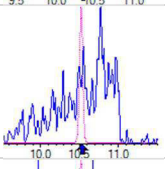
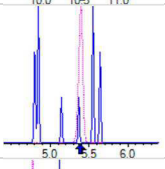
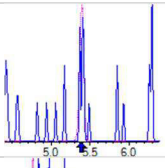
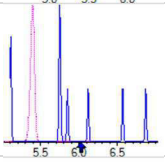
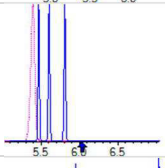
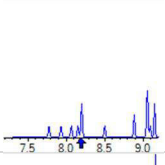
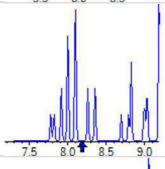
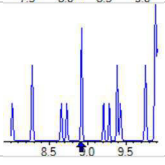
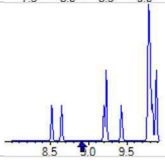
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (6)
Acquired: 2023/04/07 - 17:21

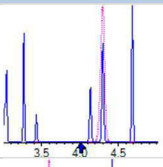
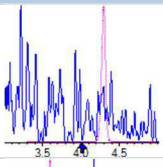
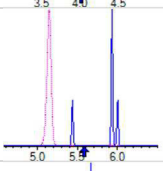
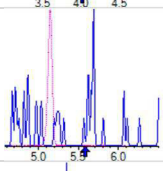
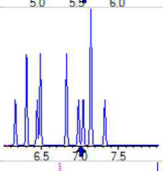
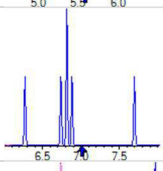
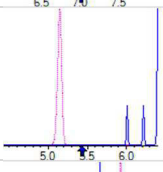
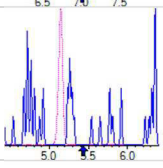
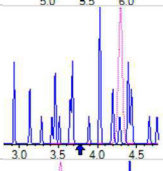
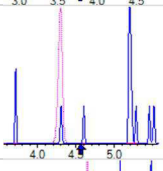
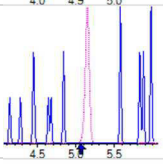
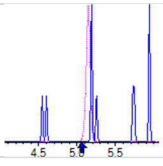
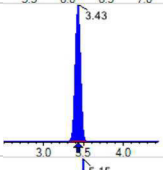
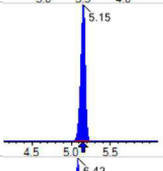
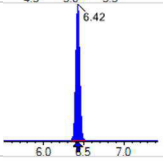
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (6)
Acquired: 2023/04/07 - 17:21

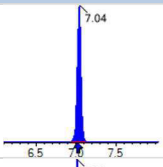
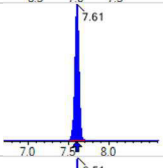
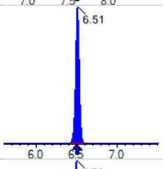
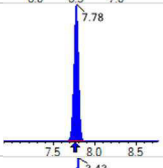
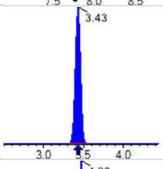
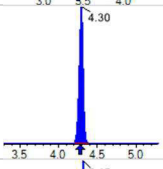
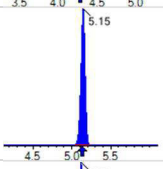
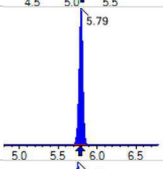
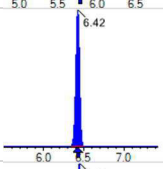
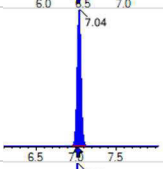
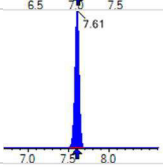
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 122594	(3.43 , N/A) (N/A , 0.00 , N/A)	1827.4	N/A	1.0753 [1.0000]	107.5% { 115.4% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 121164	(5.15 , N/A) (N/A , 0.01 , N/A)	263647.2	N/A	0.8780 [1.0000]	87.8% { 99.2% }			
13C4_PFOA_IIS	(417.0 / 372.0) 297268	(6.42 , N/A) (N/A , 0.01 , N/A)	4363.0	N/A	0.9571 [1.0000]	95.7% { 110.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (6)
Acquired: 2023/04/07 - 17:21

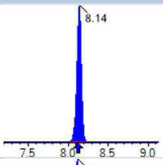
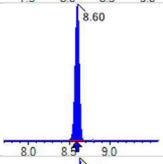
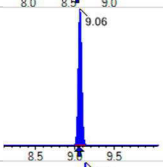
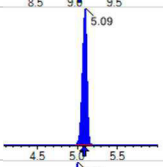
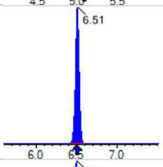
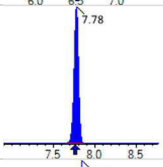
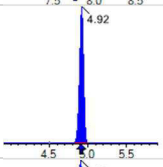
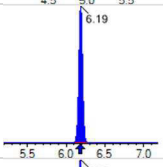
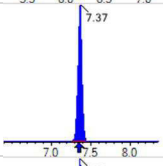
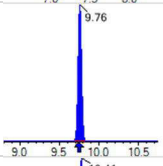
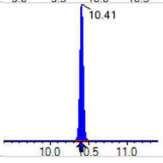
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 302448	(7.04 , N/A) (N/A , 0.01 , N/A)	1971.6	N/A	1.0259 [1.0000]	102.6% { 104.8% }			
13C2_PFDA_IIS	(515.0 / 470.1) 322450	(7.61 , N/A) (N/A , 0.01 , N/A)	9589.9	N/A	1.0402 [1.0000]	104.0% { 107.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 438018	(6.51 , N/A) (N/A , 0.01 , N/A)	13377.9	N/A	0.9765 [1.0000]	97.6% { 101.9% }			
13C4_PFOS_IIS	(503.0 / 79.9) 734093	(7.78 , N/A) (N/A , 0.01 , N/A)	2987.0	N/A	1.0549 [1.0000]	105.5% { 114.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1088723	(3.43 , N/A) (N/A , 0.00 , N/A)	5526.1	N/A	8.2807 [8.0000]	103.5% { 110.7% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 903184	(4.30 , N/A) (N/A , 0.01 , N/A)	3083.5	N/A	4.7215 [4.0000]	118.0% { 108.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 549771	(5.15 , N/A) (N/A , 0.01 , N/A)	2239.0	N/A	2.3716 [2.0000]	118.6% { 115.5% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 560920	(5.79 , N/A) (N/A , 0.01 , N/A)	40573.2	N/A	2.4163 [2.0000]	120.8% { 111.3% }			
13C8_PFOA_EIS	(421.0 / 376.0) 653458	(6.42 , N/A) (N/A , 0.01 , N/A)	3856.4	N/A	2.1354 [2.0000]	106.8% { 106.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 294497	(7.04 , N/A) (N/A , 0.01 , N/A)	369328.9	N/A	0.9995 [1.0000]	100.0% { 99.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 375449	(7.61 , N/A) (N/A , 0.01 , N/A)	2473.4	N/A	1.0660 [1.0000]	106.6% { 106.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (6)
Acquired: 2023/04/07 - 17:21

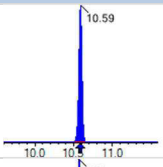
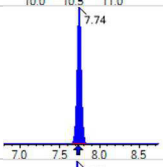
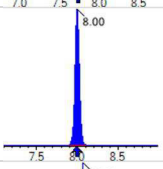
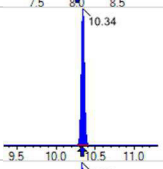
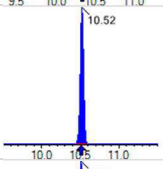
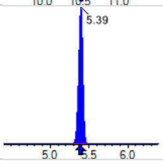
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 337072	(8.14 , N/A) (N/A , 0.01 , N/A)	47128.3	N/A	0.9927 [1.0000]	99.3% { 108.2% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 293238	(8.60 , N/A) (N/A , 0.01 , N/A)	30432.5	N/A	0.9550 [1.0000]	95.5% { 105.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 297198	(9.06 , N/A) (N/A , 0.01 , N/A)	1730.8	N/A	1.0105 [1.0000]	101.1% { 112.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1277916	(5.09 , N/A) (N/A , 0.01 , N/A)	3250.5	N/A	2.2338 [2.0000]	111.7% { 108.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 856224	(6.51 , N/A) (N/A , 0.01 , N/A)	2173.1	N/A	2.0910 [2.0000]	104.6% { 109.9% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1770758	(7.78 , N/A) (N/A , 0.01 , N/A)	3969.5	N/A	1.9814 [2.0000]	99.1% { 112.5% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 269150	(4.92 , N/A) (N/A , 0.01 , N/A)	1391.3	N/A	5.1394 [4.0000]	128.5% { 132.8% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 293814	(6.19 , N/A) (N/A , 0.01 , N/A)	4202.0	N/A	4.2265 [4.0000]	105.7% { 117.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 340901	(7.37 , N/A) (N/A , 0.01 , N/A)	2447.6	N/A	3.9836 [4.0000]	99.6% { 105.7% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3074272	(9.76 , N/A) (N/A , 0.01 , N/A)	5011.2	N/A	2.0331 [2.0000]	101.7% { 108.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 671732	(10.41 , N/A) (N/A , 0.01 , N/A)	3600.9	N/A	1.9587 [2.0000]	97.9% { 109.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (6)
Acquired: 2023/04/07 - 17:21

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
D5_NEtFOSA_EIS	(531.0 / 169.0) 603330	(10.59 , N/A) (N/A , 0.01 , N/A)	4533.4	N/A	2.1487 [2.0000]	107.4% { 110.3% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 794215	(7.74 , N/A) (N/A , 0.01 , N/A)	1758.7	N/A	4.2352 [4.0000]	105.9% { 118.1% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 594779	(8.00 , N/A) (N/A , 0.01 , N/A)	4547.8	N/A	3.8622 [4.0000]	96.6% { 107.3% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2171856	(10.34 , N/A) (N/A , 0.01 , N/A)	1829.5	N/A	19.7115 [20.0000]	98.6% { 105.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3000302	(10.52 , N/A) (N/A , 0.01 , N/A)	1634.0	N/A	20.5787 [20.0000]	102.9% { 110.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1072741	(5.39 , N/A) (N/A , 0.01 , N/A)	2465.9	N/A	9.0178 [8.0000]	112.7% { 108.8% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01368
Calibration: 2315001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC01368-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: SC01368
Calibration: 2315001

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

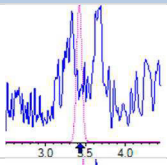
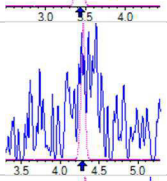
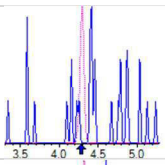
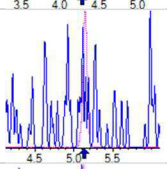
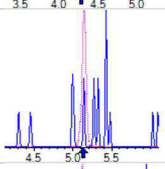
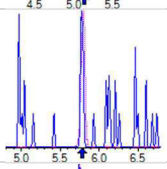
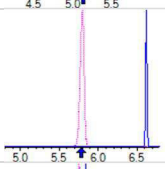
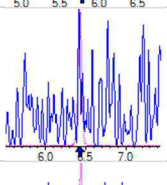
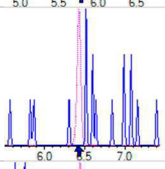
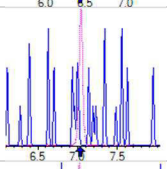
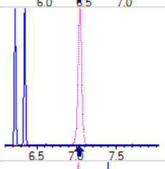
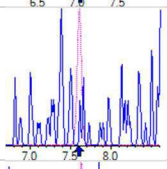
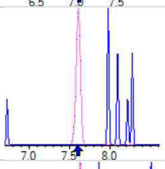
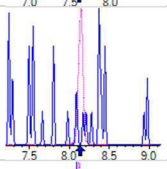
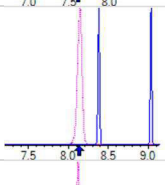
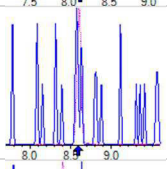
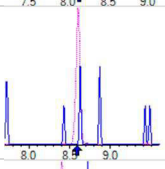
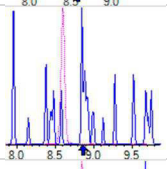
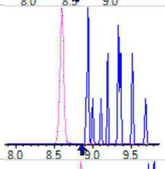
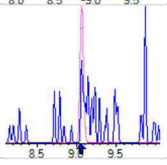
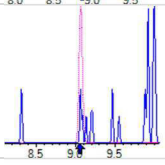
Lab Sample ID	Analyte	Found	Units	RL	C
SC01368-CCB3	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.28	ng/mL		
	13C5-PFPEA	4.42	ng/mL		
	13C5-PFHXA	2.18	ng/mL		
	13C4-PFHPA	2.16	ng/mL		
	13C8-PFOA	2.12	ng/mL		
	13C9-PFNA	0.911	ng/mL		
	13C6-PFDA	1.10	ng/mL		
	13C7-PFUnA	1.12	ng/mL		
	13C2-PFDOA	1.12	ng/mL		
	13C2-PFTEDA	1.08	ng/mL		
	13C3-PFBS	2.11	ng/mL		
	13C3-PFHXS	2.11	ng/mL		
	13C8-PFOS	1.93	ng/mL		
	13C2-4:2FTS	5.32	ng/mL		
	13C2-6:2FTS	4.22	ng/mL		
	13C2-8:2FTS	4.28	ng/mL		
	13C8-PFOSA	2.06	ng/mL		
	D3-NMEFOSA	1.98	ng/mL		
	D5-NETFOSA	2.17	ng/mL		
	D3-NMEFOSAA	4.18	ng/mL		
	D5-NETFOSAA	4.01	ng/mL		
	D7-NMEFOSE	20.8	ng/mL		
	D9-NETFOSE	21.6	ng/mL		
	13C3-HFPO-DA	8.79	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (27)
Acquired: 2023/04/07 - 21:52

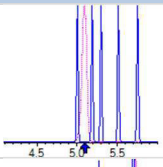
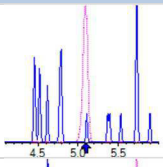
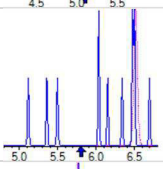
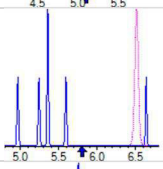
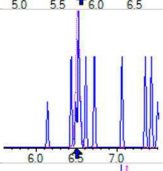
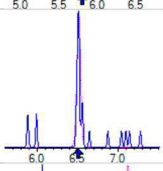
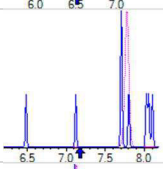
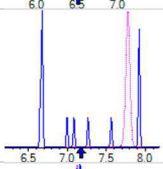
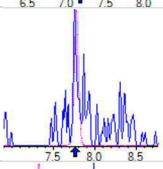
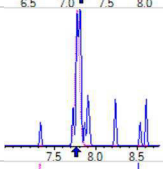
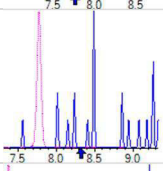
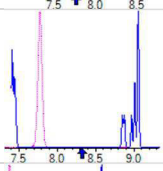
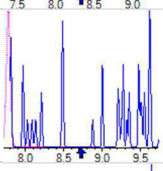
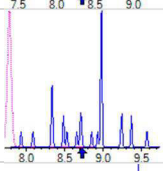
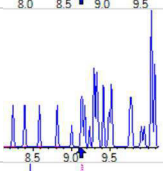
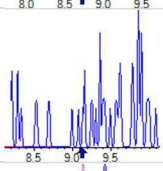
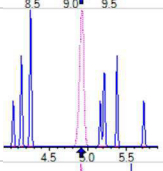
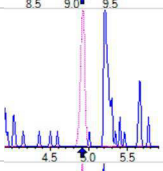
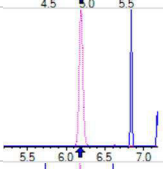
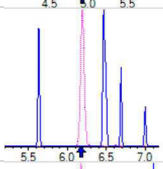
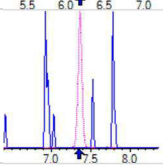
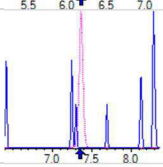
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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) 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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (27)
Acquired: 2023/04/07 - 21:52

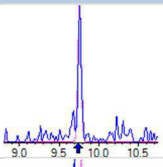
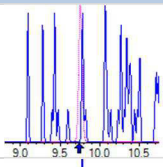
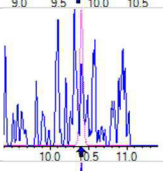
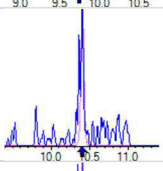
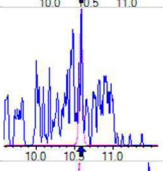
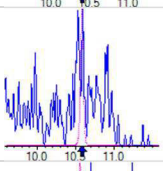
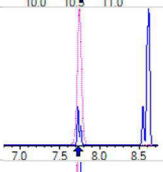
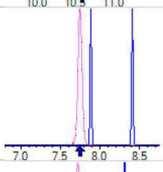
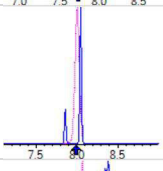
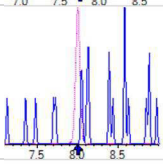
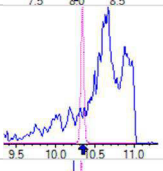
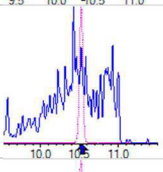
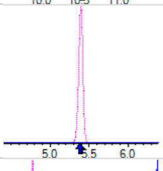
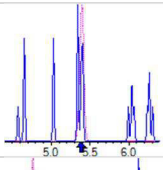
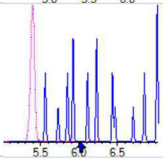
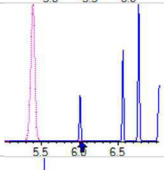
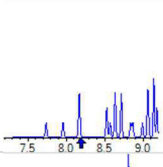
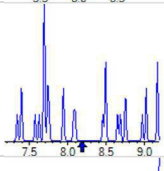
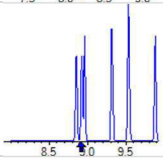
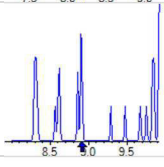
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (27)
Acquired: 2023/04/07 - 21:52

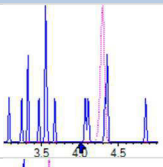
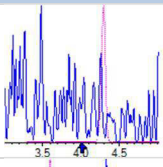
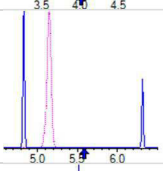
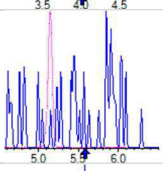
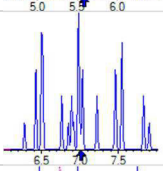
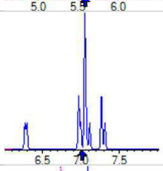
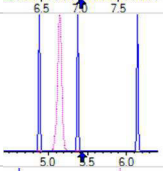
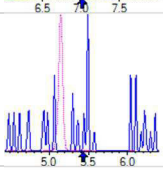
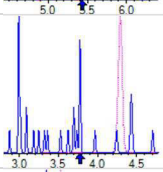
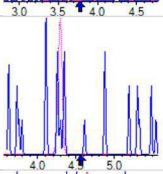
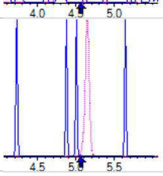
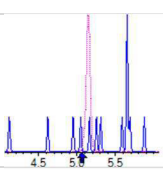
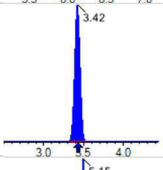
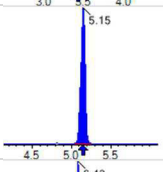
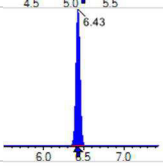
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (27)
Acquired: 2023/04/07 - 21:52

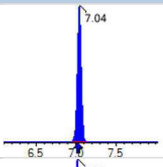
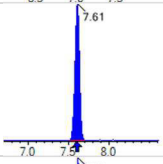
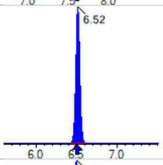
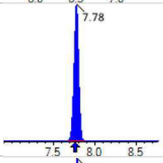
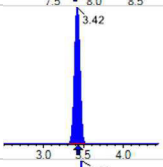
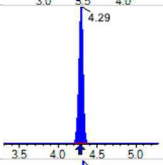
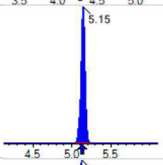
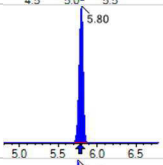
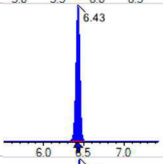
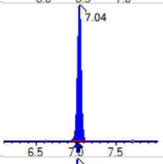
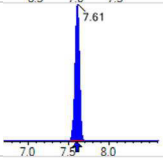
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 113938	(3.42 , N/A) (N/A , -0.01 , N/A)	1458.4	N/A	0.9994 [1.0000]	99.9% { 107.3% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 124989	(5.15 , N/A) (N/A , 0.01 , N/A)	867.8	N/A	0.9057 [1.0000]	90.6% { 102.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 285828	(6.43 , N/A) (N/A , 0.01 , N/A)	2811.2	N/A	0.9202 [1.0000]	92.0% { 106.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (27)
Acquired: 2023/04/07 - 21:52

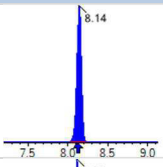
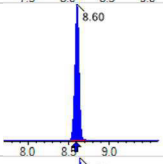
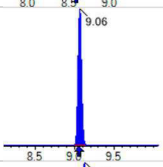
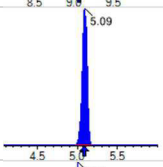
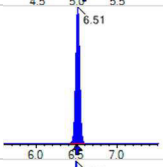
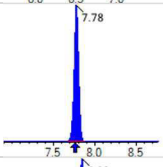
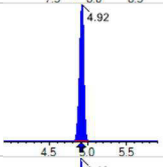
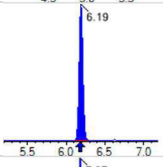
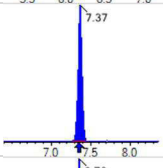
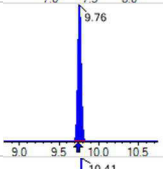
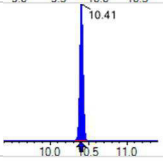
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 288227	(7.04 , N/A) (N/A , 0.01 , N/A)	7569.9	N/A	0.9777 [1.0000]	97.8% { 99.9% }			
13C2_PFDA_IIS	(515.0 / 470.1) 291345	(7.61 , N/A) (N/A , 0.01 , N/A)	2293.4	N/A	0.9398 [1.0000]	94.0% { 96.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 421879	(6.52 , N/A) (N/A , 0.01 , N/A)	4311.5	N/A	0.9405 [1.0000]	94.0% { 98.1% }			
13C4_PFOS_IIS	(503.0 / 79.9) 741729	(7.78 , N/A) (N/A , 0.01 , N/A)	1894.5	N/A	1.0658 [1.0000]	106.6% { 115.2% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1011489	(3.42 , N/A) (N/A , -0.01 , N/A)	5305.0	N/A	8.2777 [8.0000]	103.5% { 102.9% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 873075	(4.29 , N/A) (N/A , 0.01 , N/A)	2738.3	N/A	4.4245 [4.0000]	110.6% { 104.6% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 521833	(5.15 , N/A) (N/A , 0.01 , N/A)	2153.2	N/A	2.1822 [2.0000]	109.1% { 109.6% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 518169	(5.80 , N/A) (N/A , 0.01 , N/A)	2258.3	N/A	2.1638 [2.0000]	108.2% { 102.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 622826	(6.43 , N/A) (N/A , 0.01 , N/A)	34314.3	N/A	2.1168 [2.0000]	105.8% { 101.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 255817	(7.04 , N/A) (N/A , 0.01 , N/A)	2049.7	N/A	0.9111 [1.0000]	91.1% { 86.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 349501	(7.61 , N/A) (N/A , 0.01 , N/A)	277358.0	N/A	1.0982 [1.0000]	109.8% { 99.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (27)
Acquired: 2023/04/07 - 21:52

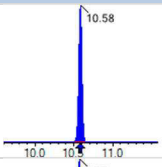
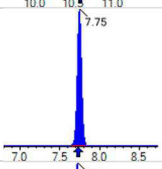
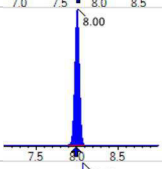
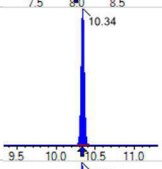
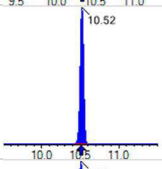
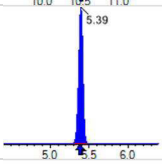
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 343921	(8.14 , N/A) (N/A , 0.02 , N/A)	1834.7	N/A	1.1210 [1.0000]	112.1% { 110.4% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 309489	(8.60 , N/A) (N/A , 0.01 , N/A)	1603.2	N/A	1.1155 [1.0000]	111.6% { 110.9% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 286793	(9.06 , N/A) (N/A , 0.01 , N/A)	1211.7	N/A	1.0792 [1.0000]	107.9% { 108.1% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1163887	(5.09 , N/A) (N/A , 0.01 , N/A)	2558.8	N/A	2.1123 [2.0000]	105.6% { 98.4% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 832263	(6.51 , N/A) (N/A , 0.01 , N/A)	3366.0	N/A	2.1103 [2.0000]	105.5% { 106.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1738689	(7.78 , N/A) (N/A , 0.01 , N/A)	3818.4	N/A	1.9255 [2.0000]	96.3% { 110.4% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 268490	(4.92 , N/A) (N/A , 0.01 , N/A)	1667.1	N/A	5.3230 [4.0000]	133.1% { 132.5% }			S2,
13C2_6:2FTS_EIS	(429.0 / 81.0) 282459	(6.19 , N/A) (N/A , 0.01 , N/A)	2961.9	N/A	4.2186 [4.0000]	105.5% { 112.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 352477	(7.37 , N/A) (N/A , 0.01 , N/A)	1801.3	N/A	4.2764 [4.0000]	106.9% { 109.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3145995	(9.76 , N/A) (N/A , 0.01 , N/A)	5269.3	N/A	2.0592 [2.0000]	103.0% { 110.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 685232	(10.41 , N/A) (N/A , 0.01 , N/A)	2488.5	N/A	1.9775 [2.0000]	98.9% { 111.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (27)
Acquired: 2023/04/07 - 21:52

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) 615557	(10.58 , N/A) (N/A , 0.01 , N/A)	3730.8	N/A	2.1696 [2.0000]	108.5% { 112.6% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 791939	(7.75 , N/A) (N/A , 0.01 , N/A)	2607.9	N/A	4.1796 [4.0000]	104.5% { 117.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 623458	(8.00 , N/A) (N/A , 0.02 , N/A)	122321.5	N/A	4.0068 [4.0000]	100.2% { 112.4% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2312945	(10.34 , N/A) (N/A , 0.01 , N/A)	1513.8	N/A	20.7759 [20.0000]	103.9% { 112.5% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3181503	(10.52 , N/A) (N/A , 0.01 , N/A)	1968.0	N/A	21.5969 [20.0000]	108.0% { 117.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1078420	(5.39 , N/A) (N/A , 0.01 , N/A)	2475.7	N/A	8.7881 [8.0000]	109.9% { 109.4% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC01368
Calibration: 2315001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC01368-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	0.0234	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: SC01368
Calibration: 2315001

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

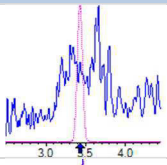
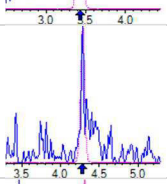
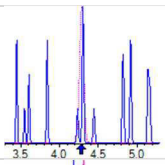
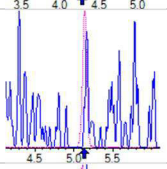
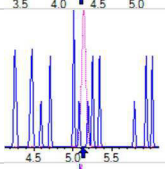
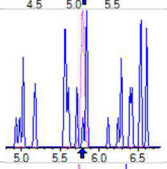
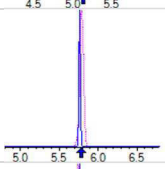
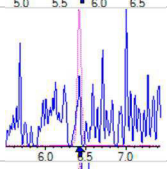
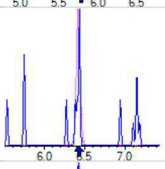
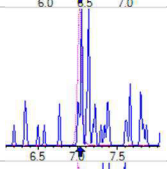
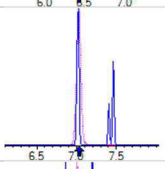
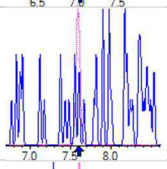
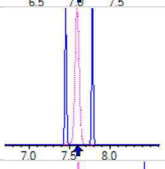
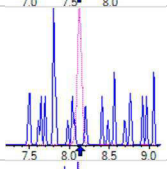
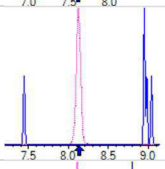
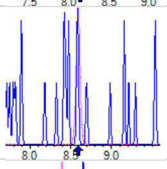
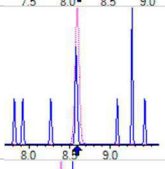
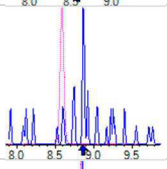
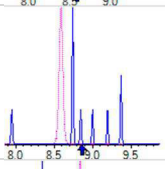
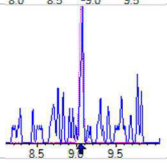
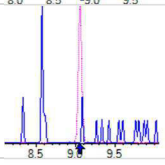
Lab Sample ID	Analyte	Found	Units	RL	C
SC01368-CCB4	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.47	ng/mL		
	13C5-PFPEA	5.21	ng/mL		
	13C5-PFHXA	2.61	ng/mL		
	13C4-PFHPA	2.67	ng/mL		
	13C8-PFOA	2.15	ng/mL		
	13C9-PFNA	0.978	ng/mL		
	13C6-PFDA	1.01	ng/mL		
	13C7-PFUnA	1.06	ng/mL		
	13C2-PFDOA	0.945	ng/mL		
	13C2-PFTEDA	0.945	ng/mL		
	13C3-PFBS	2.10	ng/mL		
	13C3-PFHXS	2.05	ng/mL		
	13C8-PFOS	1.98	ng/mL		
	13C2-4:2FTS	5.40	ng/mL		
	13C2-6:2FTS	4.80	ng/mL		
	13C2-8:2FTS	4.41	ng/mL		
	13C8-PFOSA	2.11	ng/mL		
	D3-NMEFOSA	2.02	ng/mL		
	D5-NETFOSA	2.28	ng/mL		
	D3-NMEFOSAA	4.35	ng/mL		
	D5-NETFOSAA	4.05	ng/mL		
	D7-NMEFOSE	21.4	ng/mL		
	D9-NETFOSE	21.6	ng/mL		
	13C3-HFPO-DA	10.2	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (46)
Acquired: 2023/04/08 - 01:57

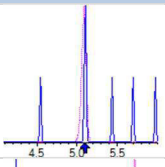
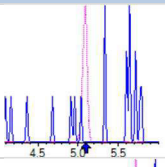
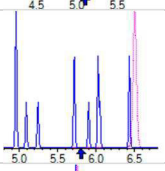
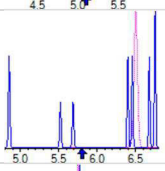
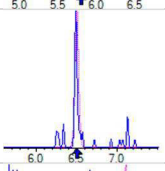
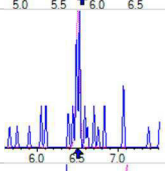
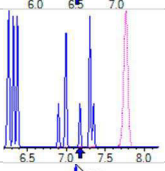
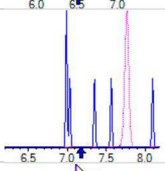
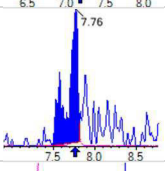
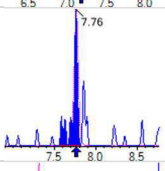
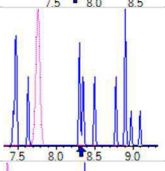
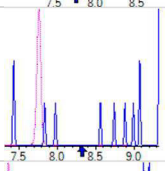
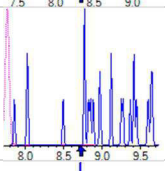
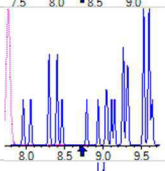
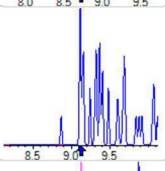
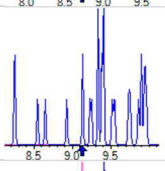
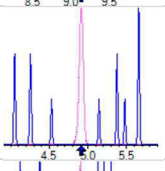
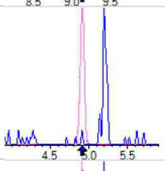
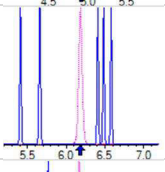
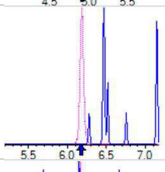
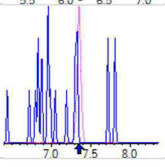
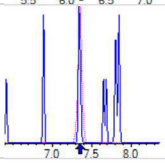
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (46)
Acquired: 2023/04/08 - 01:57

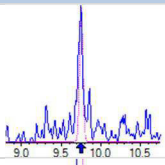
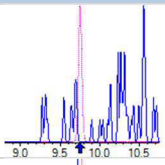
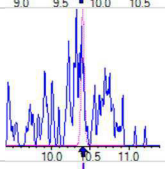
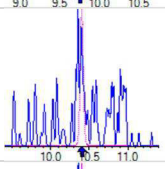
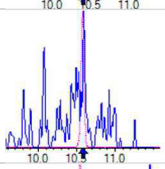
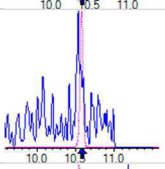
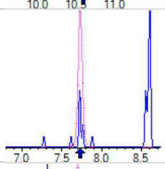
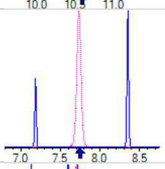
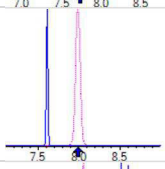
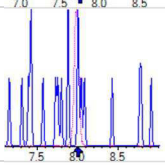
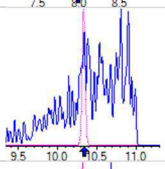
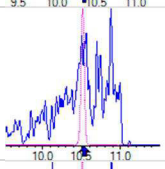
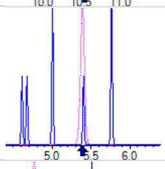
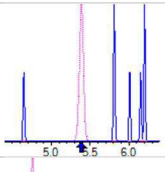
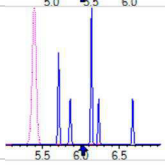
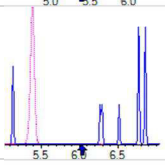
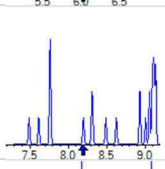
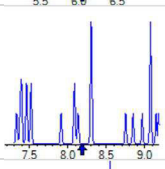
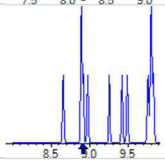
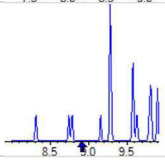
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 22091 (499.0 / 99.0) 6375	(7.76 , 1.00) (-0.01 , N/A , -0.1)	19.3 70.8	0.2886 132.9 124.0	0.0234	N/A			MI2 ABK 4/10/23
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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (46)
Acquired: 2023/04/08 - 01:57

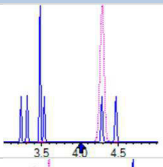
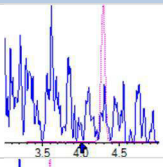
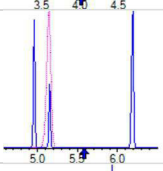
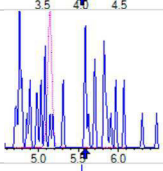
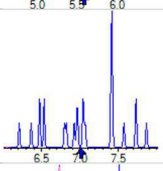
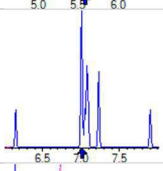
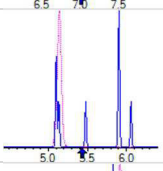
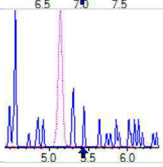
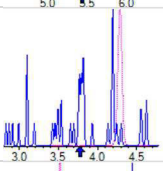
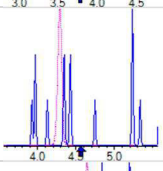
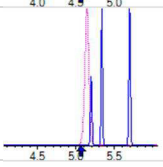
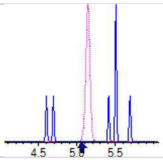
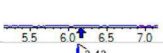
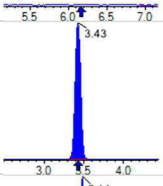
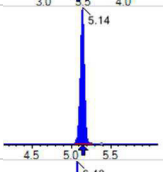
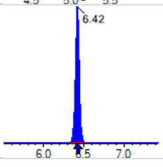
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (46)
Acquired: 2023/04/08 - 01:57

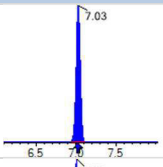
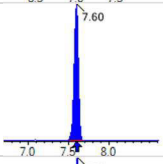
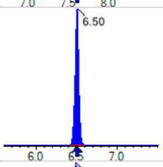
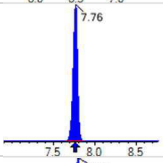
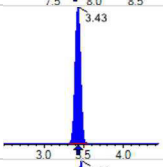
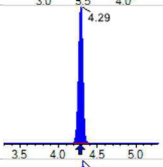
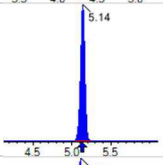
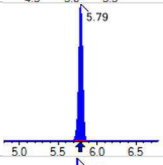
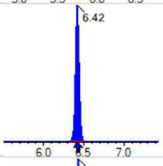
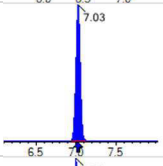
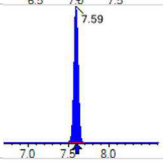
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 108542	(3.43 , N/A) (N/A , 0.00 , N/A)	1565.5	N/A	0.9521 [1.0000]	95.2% { 102.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 99422	(5.14 , N/A) (N/A , 0.00 , N/A)	15279.6	N/A	0.7204 [1.0000]	72.0% { 81.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 263683	(6.42 , N/A) (N/A , 0.00 , N/A)	436.7	N/A	0.8489 [1.0000]	84.9% { 97.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (46)
Acquired: 2023/04/08 - 01:57

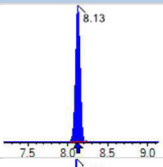
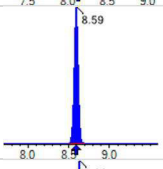
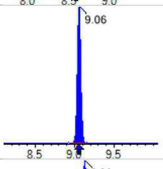
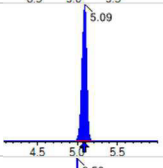
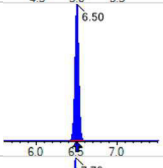
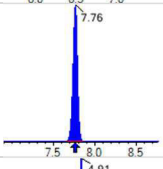
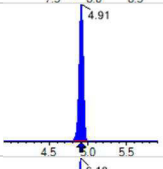
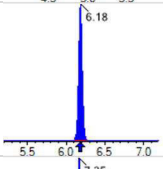
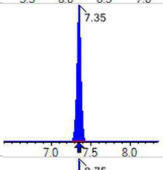
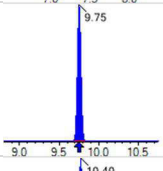
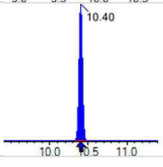
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 288149	(7.03 , N/A) (N/A , 0.00 , N/A)	43319.9	N/A	0.9774 [1.0000]	97.7% { 99.9% }			
13C2_PFDA_IIS	(515.0 / 470.1) 306373	(7.60 , N/A) (N/A , 0.00 , N/A)	1586.1	N/A	0.9883 [1.0000]	98.8% { 101.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 411663	(6.50 , N/A) (N/A , 0.00 , N/A)	3872.4	N/A	0.9177 [1.0000]	91.8% { 95.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 691148	(7.76 , N/A) (N/A , 0.00 , N/A)	2991.4	N/A	0.9932 [1.0000]	99.3% { 107.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 986266	(3.43 , N/A) (N/A , 0.00 , N/A)	5656.8	N/A	8.4725 [8.0000]	105.9% { 100.3% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 817144	(4.29 , N/A) (N/A , 0.00 , N/A)	3077.7	N/A	5.2059 [4.0000]	130.1% { 97.9% }			S2,
13C5_PFHxA_EIS	(318.0 / 273.0) 495561	(5.14 , N/A) (N/A , 0.00 , N/A)	3146.9	N/A	2.6052 [2.0000]	130.3% { 104.1% }			S2,
13C4_PFHpA_EIS	(367.0 / 322.0) 509493	(5.79 , N/A) (N/A , 0.01 , N/A)	3943.5	N/A	2.6747 [2.0000]	133.7% { 101.1% }			S2,
13C8_PFOA_EIS	(421.0 / 376.0) 584814	(6.42 , N/A) (N/A , 0.00 , N/A)	1833.7	N/A	2.1545 [2.0000]	107.7% { 95.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 274461	(7.03 , N/A) (N/A , 0.00 , N/A)	318490.4	N/A	0.9777 [1.0000]	97.8% { 92.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 338277	(7.59 , N/A) (N/A , 0.00 , N/A)	2671.9	N/A	1.0108 [1.0000]	101.1% { 95.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (46)
Acquired: 2023/04/08 - 01:57

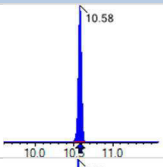
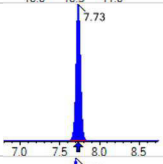
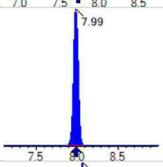
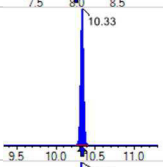
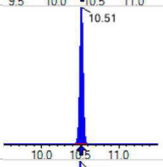
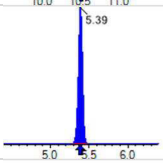
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 341185	(8.13 , N/A) (N/A , 0.00 , N/A)	44513.7	N/A	1.0575 [1.0000]	105.8% { 109.6% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 275603	(8.59 , N/A) (N/A , 0.00 , N/A)	2300.6	N/A	0.9447 [1.0000]	94.5% { 98.8% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 263967	(9.06 , N/A) (N/A , 0.00 , N/A)	1593.0	N/A	0.9446 [1.0000]	94.5% { 99.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1130850	(5.09 , N/A) (N/A , 0.01 , N/A)	3194.1	N/A	2.1033 [2.0000]	105.2% { 95.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 787227	(6.50 , N/A) (N/A , 0.00 , N/A)	3597.3	N/A	2.0456 [2.0000]	102.3% { 101.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1662223	(7.76 , N/A) (N/A , 0.00 , N/A)	3508.7	N/A	1.9755 [2.0000]	98.8% { 105.6% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 265796	(4.91 , N/A) (N/A , 0.01 , N/A)	1811.1	N/A	5.4003 [4.0000]	135.0% { 131.1% }			S2,
13C2_6:2FTS_EIS	(429.0 / 81.0) 313731	(6.18 , N/A) (N/A , 0.00 , N/A)	1720.5	N/A	4.8019 [4.0000]	120.0% { 125.3% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 354565	(7.35 , N/A) (N/A , 0.00 , N/A)	4865.7	N/A	4.4085 [4.0000]	110.2% { 109.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3003018	(9.75 , N/A) (N/A , 0.01 , N/A)	4522.3	N/A	2.1094 [2.0000]	105.5% { 105.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 653075	(10.40 , N/A) (N/A , 0.00 , N/A)	3098.0	N/A	2.0226 [2.0000]	101.1% { 106.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (46)
Acquired: 2023/04/08 - 01:57

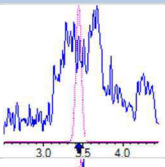
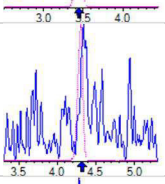
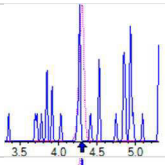
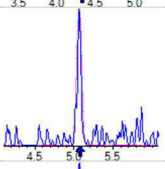
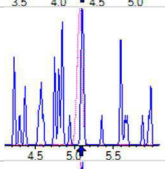
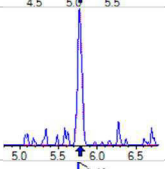
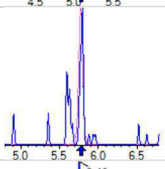
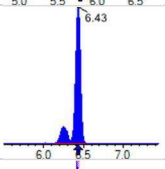
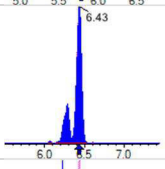
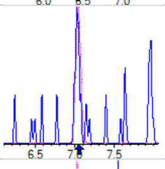
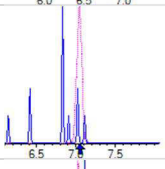
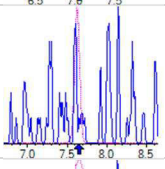
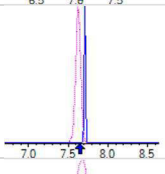
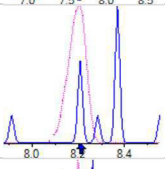
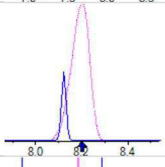
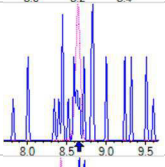
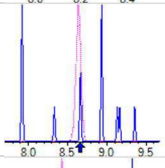
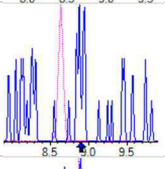
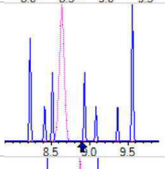
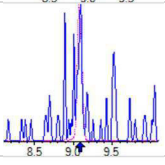
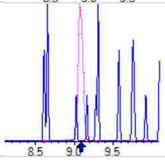
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 603074	(10.58 , N/A) (N/A , 0.00 , N/A)	2914.5	N/A	2.2812 [2.0000]	114.1% { 110.3% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 767356	(7.73 , N/A) (N/A , 0.00 , N/A)	2084.6	N/A	4.3463 [4.0000]	108.7% { 114.1% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 587529	(7.99 , N/A) (N/A , 0.00 , N/A)	66440.0	N/A	4.0522 [4.0000]	101.3% { 106.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2223612	(10.33 , N/A) (N/A , 0.00 , N/A)	2110.4	N/A	21.4352 [20.0000]	107.2% { 108.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2965345	(10.51 , N/A) (N/A , 0.00 , N/A)	1943.3	N/A	21.6027 [20.0000]	108.0% { 109.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 995128	(5.39 , N/A) (N/A , 0.00 , N/A)	3242.5	N/A	10.1947 [8.0000]	127.4% { 100.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01217-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28C (4)
Acquired: 2023/03/28 - 22:49

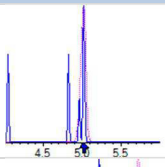
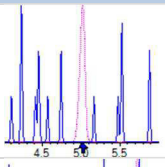
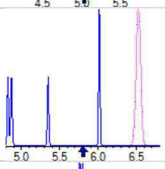
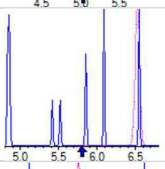
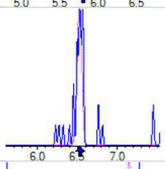
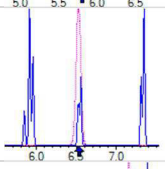
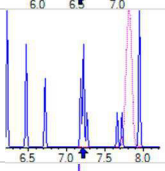
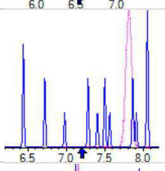
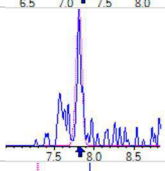
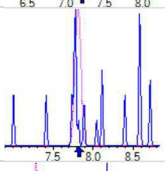
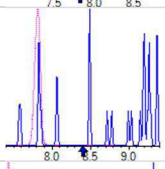
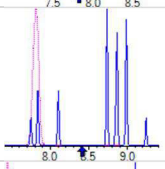
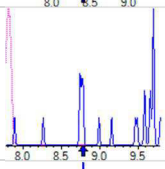
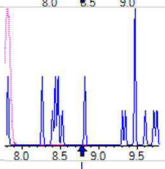
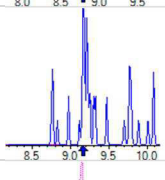
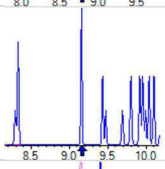
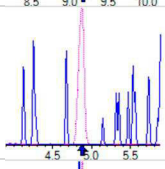
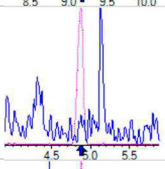
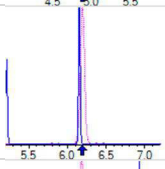
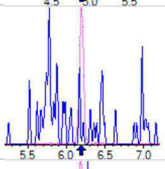
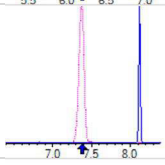
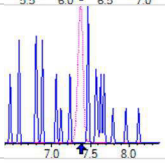
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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) 3065912 (413.0 / 169.0) 1007017	(6.43 , 1.00) (0.00 , N/A , 0.0)	2261.4 3448.4	0.3285 95.9 108.5	8.6175	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.: SC01217-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28C (4)
Acquired: 2023/03/28 - 22:49

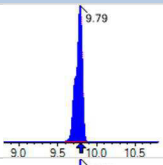
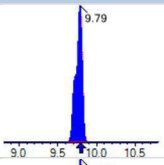
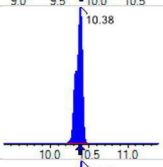
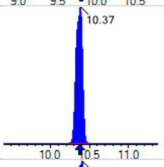
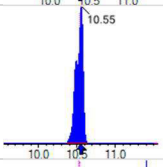
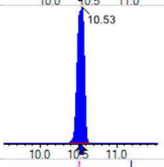
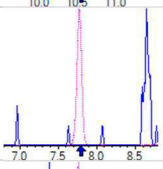
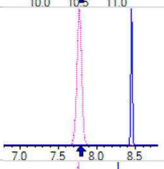
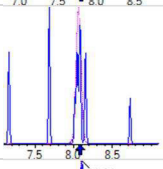
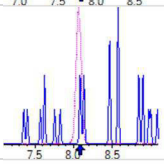
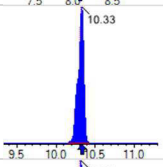
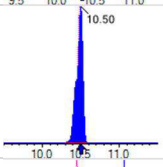
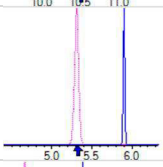
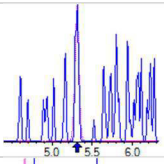
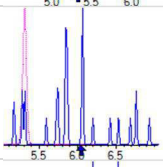
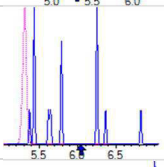
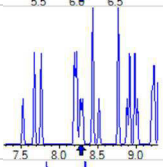
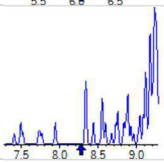
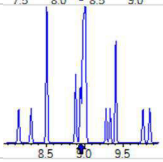
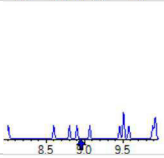
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC01217-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28C (4)
Acquired: 2023/03/28 - 22:49

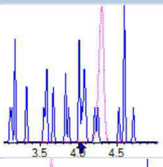
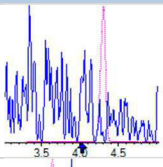
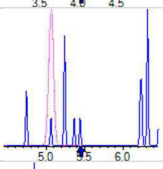
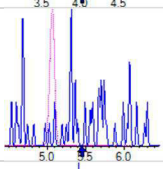
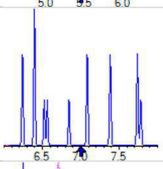
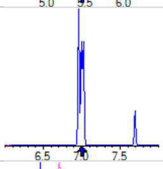
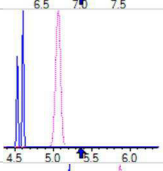
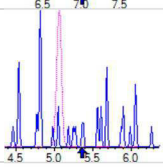
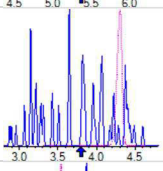
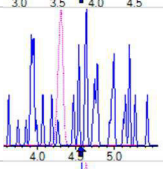
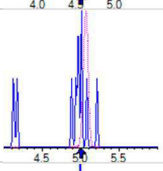
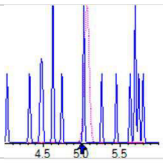
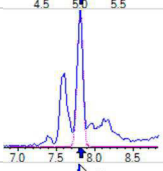
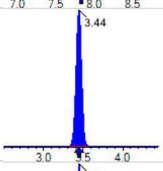
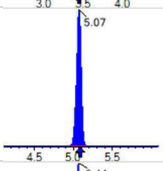
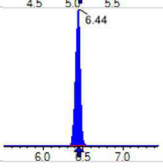
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 14865433 (498.0 / 478.0) 337787	(9.79 , 1.00) (-0.01 , N/A , 0.0)	4261.9 1464.4	0.0227 99.5 100.8	10.6292	N/A			
NMeFOSA	(512.0 / 219.0) 3081030 (512.0 / 169.0) 2590451	(10.38 , 1.00) (0.00 , N/A , 0.9)	5147.8 6299.1	0.8408 97.7 99.8	9.1241	N/A			
NEtFOSA	(526.0 / 219.0) 3518526 (526.0 / 169.0) 4476168	(10.55 , 1.00) (-0.01 , N/A , 0.8)	5844.6 5408.1	1.2722 100.7 100.8	8.6907	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) 1426584	(10.33 , 1.00) (0.01 , N/A , 0.0)	2141.9	N/A 0.0 0.0	10.0786	N/A			
NEtFOSE	(630.0 / 59.0) 1751551	(10.50 , 1.00) (0.01 , N/A , 0.0)	1133.5	N/A 0.0 0.0	10.2480	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.: SC01217-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28C (4)
Acquired: 2023/03/28 - 22:49

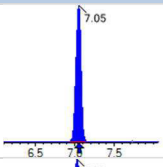
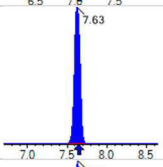
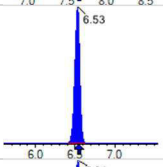
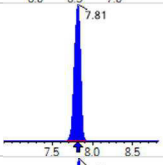
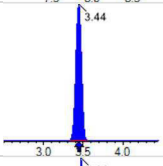
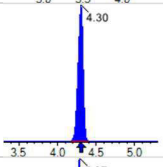
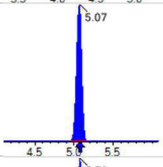
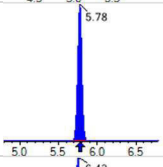
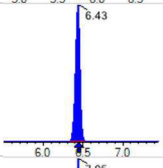
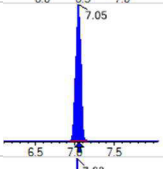
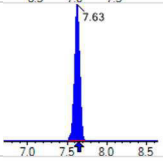
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 189950	(3.44 , N/A) (N/A , 0.00 , N/A)	1822.4	N/A	0.9776 [1.0000]	97.8% { 103.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 258298	(5.07 , N/A) (N/A , 0.00 , N/A)	3381.9	N/A	0.9616 [1.0000]	96.2% { 91.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 397297	(6.44 , N/A) (N/A , -0.01 , N/A)	5925951.9	N/A	0.8834 [1.0000]	88.3% { 100.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01217-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28C (4)
Acquired: 2023/03/28 - 22:49

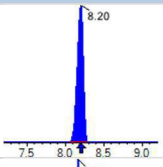
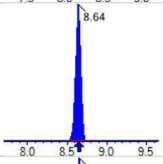
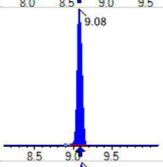
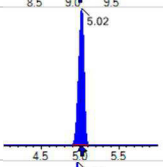
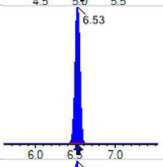
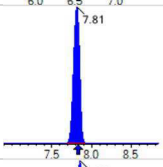
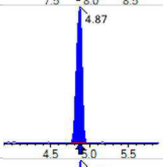
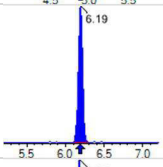
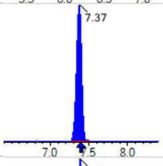
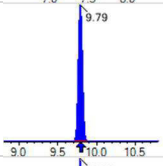
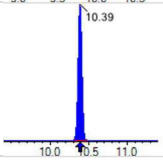
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 377630	(7.05 , N/A) (N/A , -0.01 , N/A)	3342.7	N/A	0.9388 [1.0000]	93.9% { 93.1% }			
13C2_PFDA_IIS	(515.0 / 470.1) 378391	(7.63 , N/A) (N/A , -0.01 , N/A)	1607.6	N/A	0.9345 [1.0000]	93.5% { 96.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 549380	(6.53 , N/A) (N/A , -0.01 , N/A)	3487.4	N/A	0.8549 [1.0000]	85.5% { 89.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 763230	(7.81 , N/A) (N/A , -0.01 , N/A)	1400.9	N/A	0.9663 [1.0000]	96.6% { 99.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1539389	(3.44 , N/A) (N/A , 0.00 , N/A)	5183.3	N/A	7.7582 [8.0000]	97.0% { 101.2% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1185998	(4.30 , N/A) (N/A , 0.00 , N/A)	3032.8	N/A	3.9041 [4.0000]	97.6% { 97.5% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 698918	(5.07 , N/A) (N/A , 0.00 , N/A)	5472.5	N/A	1.8920 [2.0000]	94.6% { 101.5% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 606715	(5.78 , N/A) (N/A , -0.01 , N/A)	3125.8	N/A	1.9753 [2.0000]	98.8% { 93.5% }			
13C8_PFOA_EIS	(421.0 / 376.0) 746850	(6.43 , N/A) (N/A , -0.01 , N/A)	1832.2	N/A	2.0540 [2.0000]	102.7% { 91.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 345189	(7.05 , N/A) (N/A , -0.01 , N/A)	5449.3	N/A	0.9984 [1.0000]	99.8% { 100.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 391221	(7.63 , N/A) (N/A , -0.01 , N/A)	1121.5	N/A	0.9611 [1.0000]	96.1% { 95.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01217-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28C (4)
Acquired: 2023/03/28 - 22:49

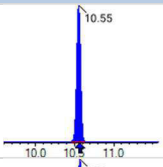
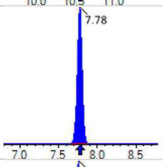
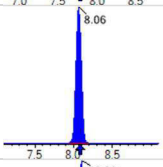
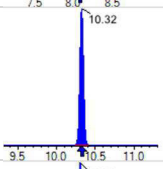
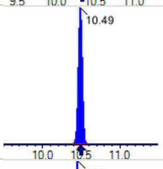
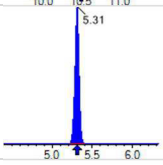
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 401494	(8.20 , N/A) (N/A , 0.00 , N/A)	236.9	N/A	0.9470 [1.0000]	94.7% { 93.7% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 363582	(8.64 , N/A) (N/A , -0.01 , N/A)	1720.1	N/A	0.9078 [1.0000]	90.8% { 98.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 362785	(9.08 , N/A) (N/A , -0.01 , N/A)	1136.1	N/A	0.9223 [1.0000]	92.2% { 88.2% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1809248	(5.02 , N/A) (N/A , 0.00 , N/A)	2585.7	N/A	2.2310 [2.0000]	111.6% { 102.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 988631	(6.53 , N/A) (N/A , -0.01 , N/A)	2100.9	N/A	2.1496 [2.0000]	107.5% { 93.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1875222	(7.81 , N/A) (N/A , -0.01 , N/A)	2610.8	N/A	2.0785 [2.0000]	103.9% { 104.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 348619	(4.87 , N/A) (N/A , 0.00 , N/A)	772.5	N/A	4.2406 [4.0000]	106.0% { 99.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 395587	(6.19 , N/A) (N/A , 0.00 , N/A)	747.4	N/A	4.1397 [4.0000]	103.5% { 101.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 437321	(7.37 , N/A) (N/A , -0.01 , N/A)	1286.4	N/A	4.0565 [4.0000]	101.4% { 99.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3361759	(9.79 , N/A) (N/A , -0.01 , N/A)	4640.5	N/A	2.0257 [2.0000]	101.3% { 96.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 794238	(10.39 , N/A) (N/A , -0.01 , N/A)	3088.7	N/A	2.1577 [2.0000]	107.9% { 98.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01217-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28C (4)
Acquired: 2023/03/28 - 22:49

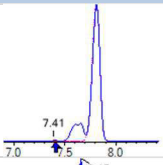
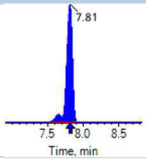
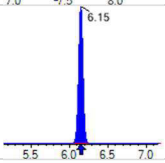
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 771427	(10.55 , N/A) (N/A , -0.01 , N/A)	3515.7	N/A	2.4186 [2.0000]	120.9% { 106.5% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 842569	(7.78 , N/A) (N/A , -0.01 , N/A)	2234.7	N/A	4.1382 [4.0000]	103.5% { 98.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 621961	(8.06 , N/A) (N/A , -0.01 , N/A)	462641.1	N/A	3.8502 [4.0000]	96.3% { 91.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2592833	(10.32 , N/A) (N/A , -0.01 , N/A)	1777.3	N/A	22.8865 [20.0000]	114.4% { 99.3% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3387920	(10.49 , N/A) (N/A , -0.01 , N/A)	1508.2	N/A	22.6805 [20.0000]	113.4% { 99.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1495915	(5.31 , N/A) (N/A , 0.00 , N/A)	2881.6	N/A	8.4877 [8.0000]	106.1% { 97.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01217-PEM2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-28C (5)
Acquired: 2023/03/28 - 23:02

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) 27862 (499.0 / 99.0) 2114298	(7.41 , 0.95) (-0.40 , N/A , -24.3)	6.6	75.8859 33285.6 34375.1	0.0278	N/A			
TDCA	(499.0 / 80.0) 6646306	(6.15 , 0.79) (N/A , #Value! , 0.0)	133982.9	N/A 0.0 0.0	7.1134	N/A			

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

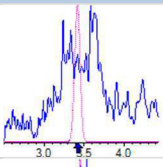
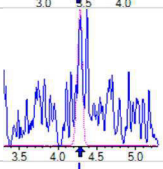
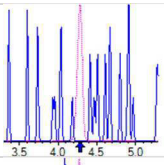
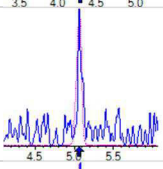
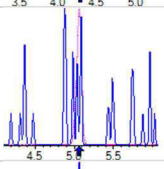
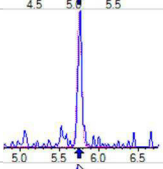
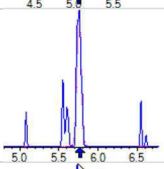
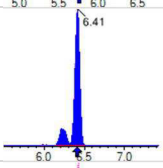
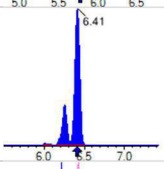
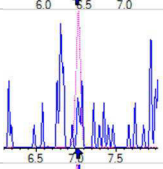
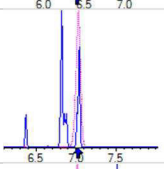
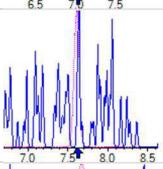
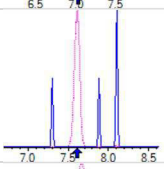
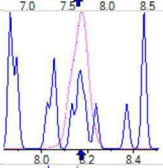
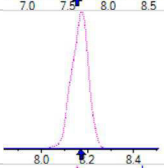
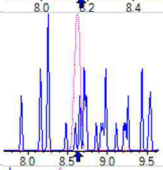
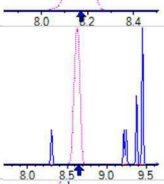
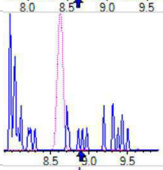
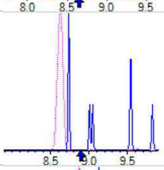
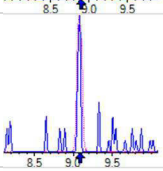
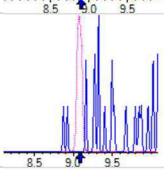
7.41 - 6.15 = 1.26 Pass

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01240-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-29B (4)
Acquired: 2023/03/30 - 02:09

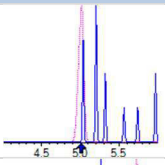
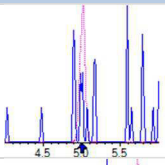
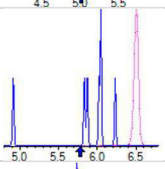
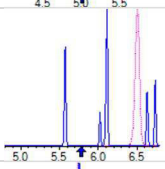
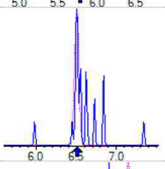
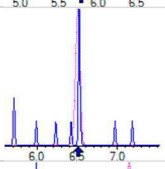
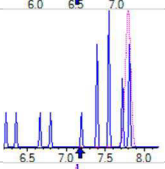
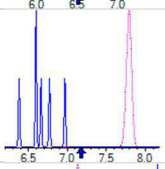
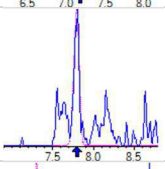
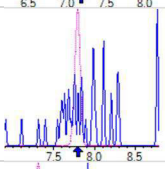
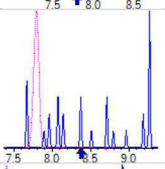
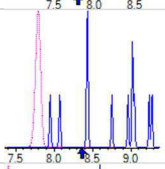
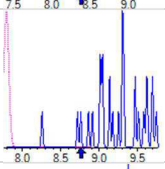
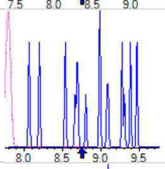
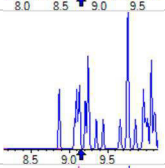
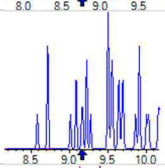
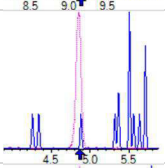
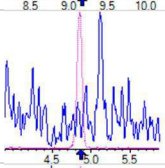
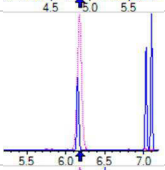
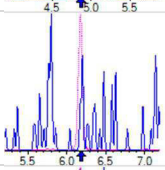
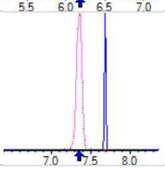
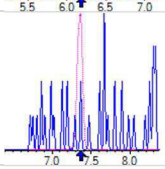
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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) 2756780 (413.0 / 169.0) 956133	(6.41 , 1.00) (0.00 , N/A , 0.0)	2056.8 2185.4	0.3468 101.3 111.9	8.2220	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.: SC01240-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-29B (4)
Acquired: 2023/03/30 - 02:09

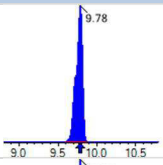
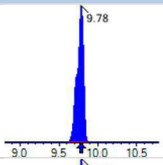
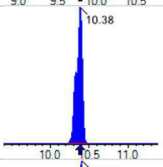
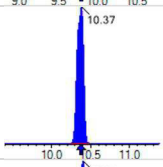
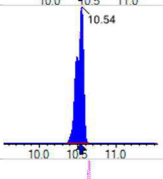
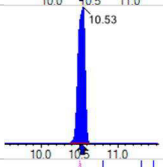
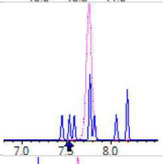
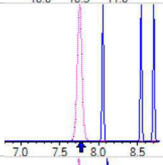
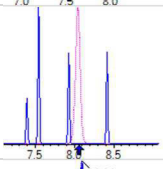
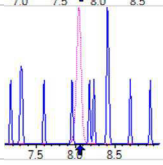
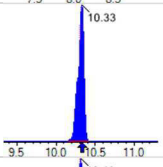
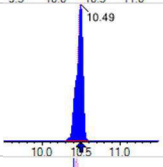
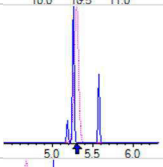
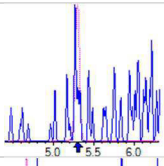
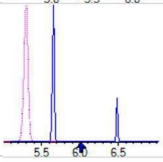
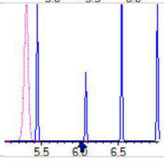
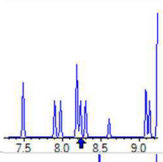
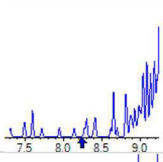
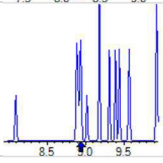
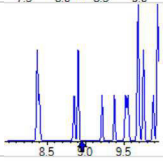
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC01240-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-29B (4)
Acquired: 2023/03/30 - 02:09

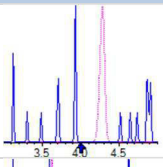
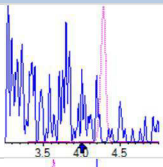
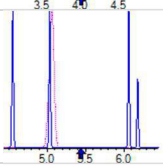
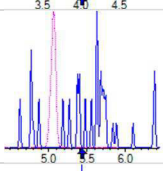
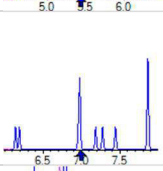
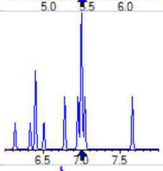
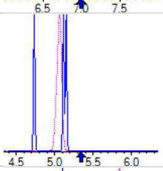
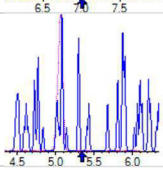
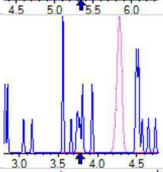
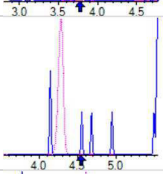
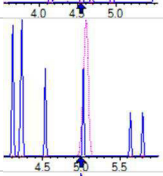
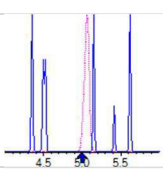
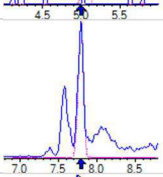
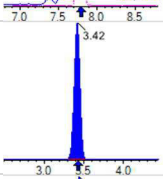
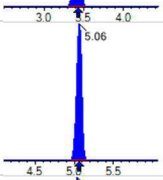
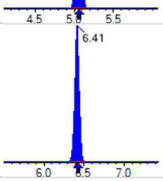
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 14332965 (498.0 / 478.0) 332746	(9.78 , 1.00) (-0.01 , N/A , -0.1)	3555.1 1048.4	0.0232 101.7 107.4	10.7960	N/A			
NMeFOSA	(512.0 / 219.0) 2849109 (512.0 / 169.0) 2431559	(10.38 , 1.00) (0.00 , N/A , 0.9)	4501.3 5732.5	0.8534 99.1 101.1	8.9880	N/A			
NEtFOSA	(526.0 / 219.0) 3244787 (526.0 / 169.0) 4120787	(10.54 , 1.00) (-0.01 , N/A , 0.6)	6938.6 6073.1	1.2700 100.6 99.0	8.8460	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) 1412136	(10.33 , 1.00) (0.01 , N/A , 0.0)	2350.5	N/A 0.0 0.0	9.7020	N/A			
NEtFOSE	(630.0 / 59.0) 1696212	(10.49 , 1.00) (0.01 , N/A , 0.0)	1295.1	N/A 0.0 0.0	9.8230	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.: SC01240-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-29B (4)
Acquired: 2023/03/30 - 02:09

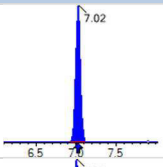
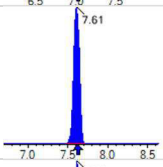
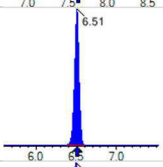
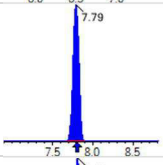
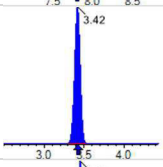
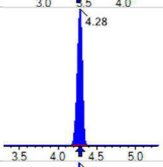
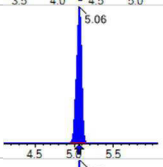
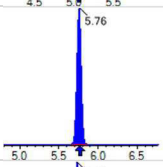
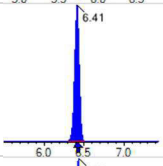
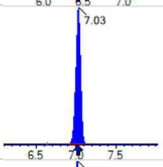
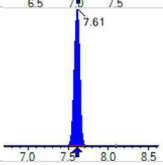
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 156067	(3.42 , N/A) (N/A , -0.01 , N/A)	1546.8	N/A	0.8030 [1.0000]	80.3% { 102.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 262774	(5.06 , N/A) (N/A , 0.00 , N/A)	249.5	N/A	0.9780 [1.0000]	97.8% { 104.9% }			
13C4_PFOA_IIS	(417.0 / 372.0) 364271	(6.41 , N/A) (N/A , 0.00 , N/A)	5362.4	N/A	0.8100 [1.0000]	81.0% { 99.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01240-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-29B (4)
Acquired: 2023/03/30 - 02:09

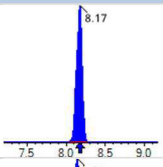
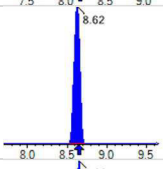
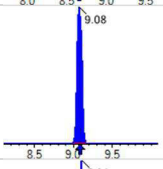
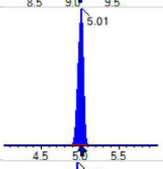
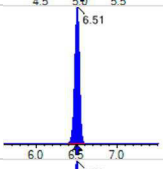
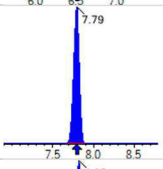
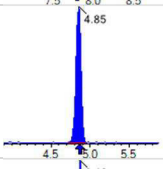
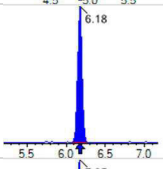
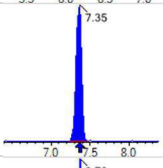
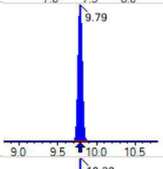
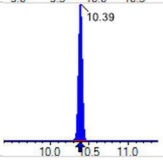
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 326569	(7.02 , N/A) (N/A , 0.00 , N/A)	3823.9	N/A	0.8120 [1.0000]	81.2% { 96.6% }			
13C2_PFDA_IIS	(515.0 / 470.1) 329192	(7.61 , N/A) (N/A , -0.01 , N/A)	1649.4	N/A	0.8130 [1.0000]	81.3% { 94.5% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 517425	(6.51 , N/A) (N/A , 0.00 , N/A)	7398.3	N/A	0.8050 [1.0000]	80.5% { 105.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 774381	(7.79 , N/A) (N/A , -0.01 , N/A)	1761.3	N/A	0.9800 [1.0000]	98.0% { 97.9% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1355111	(3.42 , N/A) (N/A , -0.01 , N/A)	6966.9	N/A	8.3120 [8.0000]	103.9% { 103.9% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1162439	(4.28 , N/A) (N/A , 0.00 , N/A)	3150.5	N/A	3.7610 [4.0000]	94.0% { 101.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 676274	(5.06 , N/A) (N/A , 0.01 , N/A)	5460.7	N/A	1.7990 [2.0000]	90.0% { 104.6% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 600779	(5.76 , N/A) (N/A , 0.00 , N/A)	7215.7	N/A	1.9230 [2.0000]	96.1% { 107.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 703855	(6.41 , N/A) (N/A , 0.00 , N/A)	1929.9	N/A	2.1110 [2.0000]	105.6% { 100.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 314646	(7.03 , N/A) (N/A , 0.00 , N/A)	2753119.8	N/A	1.0520 [1.0000]	105.2% { 95.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 365771	(7.61 , N/A) (N/A , 0.00 , N/A)	4306.4	N/A	1.0330 [1.0000]	103.3% { 101.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01240-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-29B (4)
Acquired: 2023/03/30 - 02:09

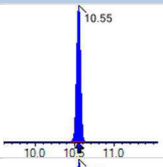
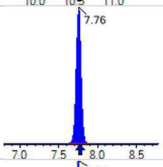
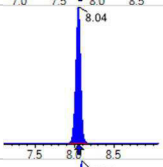
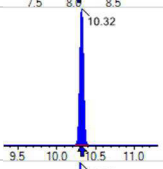
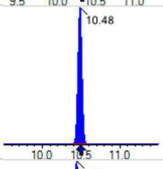
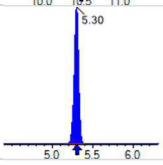
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 380673	(8.17 , N/A) (N/A , 0.00 , N/A)	8201.4	N/A	1.0320 [1.0000]	103.2% { 102.5% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 326800	(8.62 , N/A) (N/A , 0.00 , N/A)	3336.5	N/A	0.9380 [1.0000]	93.8% { 101.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 336114	(9.08 , N/A) (N/A , 0.00 , N/A)	1257.1	N/A	0.9820 [1.0000]	98.2% { 109.6% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1631148	(5.01 , N/A) (N/A , 0.00 , N/A)	4024.4	N/A	2.1360 [2.0000]	106.8% { 96.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 908988	(6.51 , N/A) (N/A , 0.00 , N/A)	1901.3	N/A	2.0980 [2.0000]	104.9% { 103.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1848469	(7.79 , N/A) (N/A , 0.00 , N/A)	2521.1	N/A	2.0190 [2.0000]	101.0% { 106.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 330310	(4.85 , N/A) (N/A , 0.00 , N/A)	707.2	N/A	4.2660 [4.0000]	106.7% { 94.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 354867	(6.18 , N/A) (N/A , 0.00 , N/A)	761.7	N/A	3.9430 [4.0000]	98.6% { 100.9% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 403073	(7.35 , N/A) (N/A , 0.00 , N/A)	841.1	N/A	3.9700 [4.0000]	99.2% { 88.5% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3191369	(9.79 , N/A) (N/A , 0.00 , N/A)	3986.8	N/A	1.8950 [2.0000]	94.8% { 101.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 745587	(10.39 , N/A) (N/A , 0.00 , N/A)	2687.7	N/A	1.9960 [2.0000]	99.8% { 100.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01240-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-29B (4)
Acquired: 2023/03/30 - 02:09

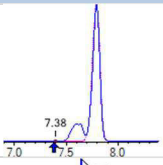
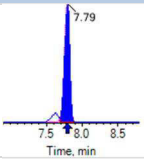
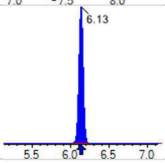
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 698946	(10.55 , N/A) (N/A , 0.00 , N/A)	3274.1	N/A	2.1600 [2.0000]	108.0% { 109.3% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 882469	(7.76 , N/A) (N/A , -0.01 , N/A)	2366.7	N/A	4.2720 [4.0000]	106.8% { 97.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 657207	(8.04 , N/A) (N/A , 0.00 , N/A)	12833.3	N/A	4.0100 [4.0000]	100.2% { 100.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2666293	(10.32 , N/A) (N/A , 0.00 , N/A)	2733.9	N/A	23.1960 [20.0000]	116.0% { 102.9% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3422824	(10.48 , N/A) (N/A , 0.00 , N/A)	1596.4	N/A	22.5840 [20.0000]	112.9% { 103.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1550412	(5.30 , N/A) (N/A , 0.00 , N/A)	2538.9	N/A	8.6470 [8.0000]	108.1% { 101.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: HGH
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01240-PEM2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-03-28B
Path: S2023-03-29B (5)
Acquired: 2023/03/30 - 02:22

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
PFOS	(499.0 / 80.0) 31279 (499.0 / 99.0) 1845460	(7.38 , 0.95) (-0.40 , N/A , -24.5)	10.0	58.9999 25879.0 26961.5	0.0320	N/A			
TDCA	(499.0 / 80.0) 7043219	(6.13 , 0.79) (N/A , #Value! , 0.0)	147968.6	N/A 0.0 0.0	7.6910	N/A			

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

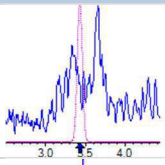
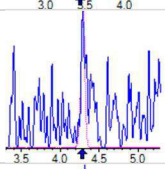
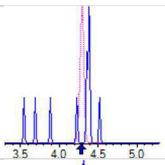
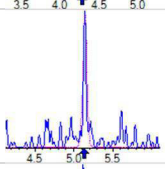
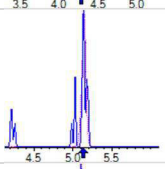
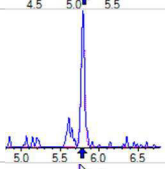
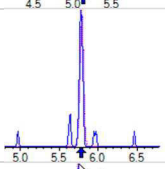
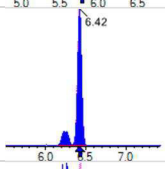
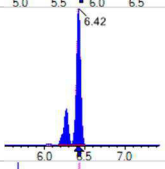
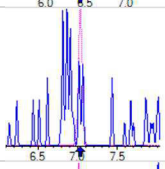
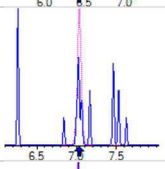
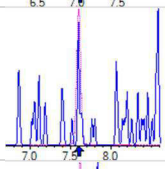
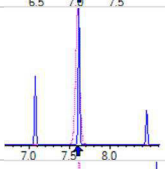
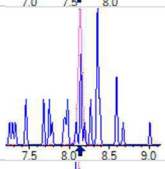
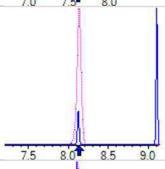
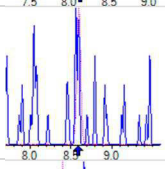
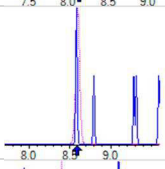
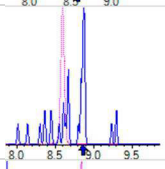
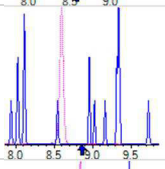
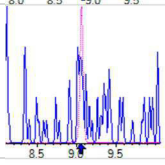
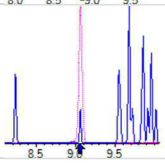
7.38 - 6.13 = 1.25 Pass

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (4)
Acquired: 2023/04/07 - 16:56

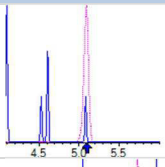
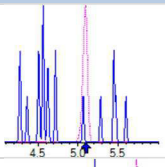
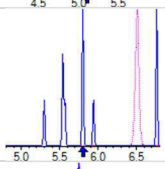
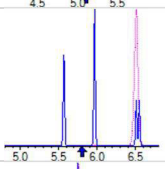
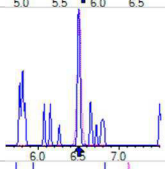
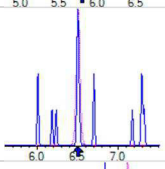
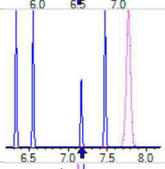
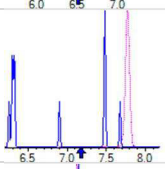
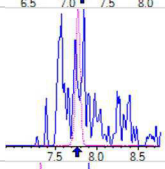
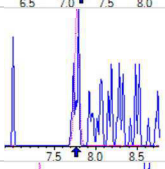
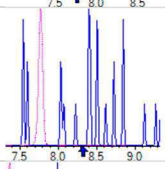
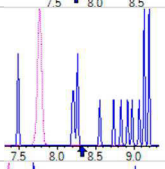
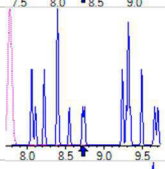
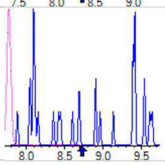
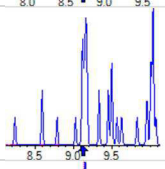
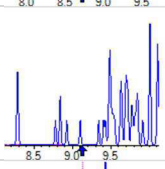
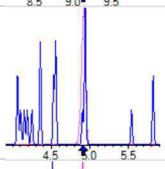
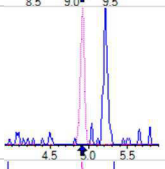
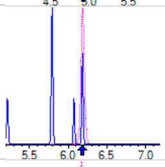
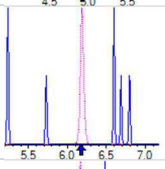
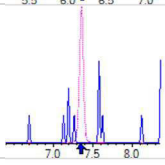
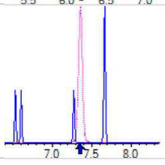
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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) 2599428 (413.0 / 169.0) 887506	(6.42 , 1.00) (0.00 , N/A , 0.0)	2008.0 3681.8	0.3414 101.5 106.9	8.2433	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (4)
Acquired: 2023/04/07 - 16:56

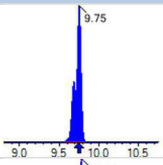
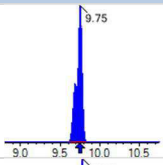
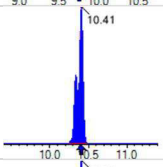
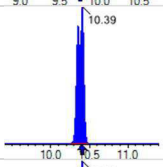
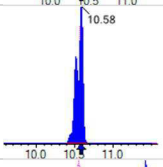
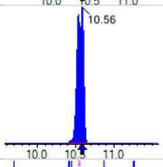
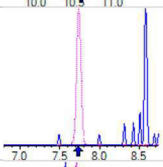
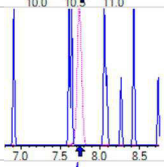
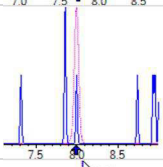
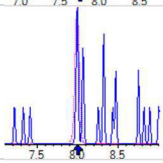
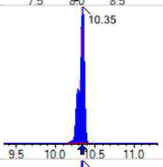
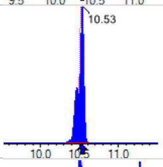
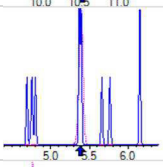
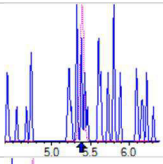
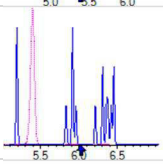
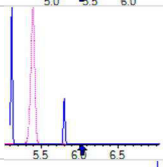
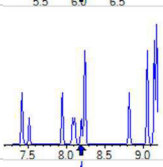
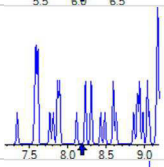
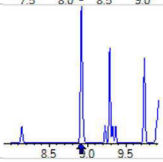
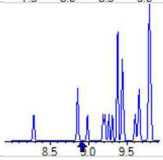
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (4)
Acquired: 2023/04/07 - 16:56

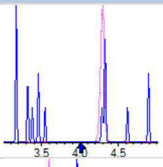
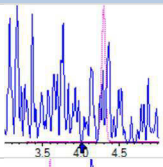
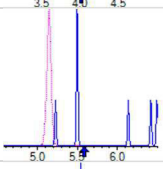
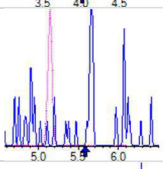
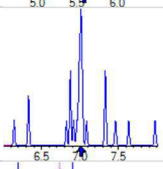
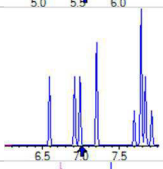
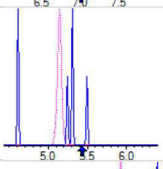
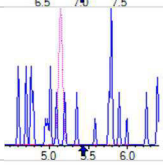
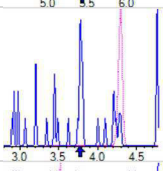
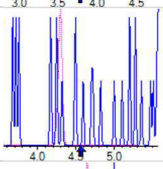
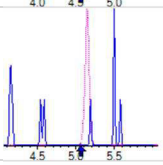
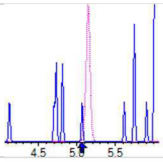
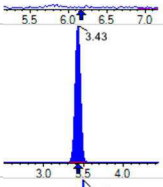
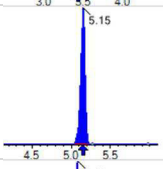
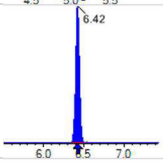
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 13029124 (498.0 / 478.0) 315426	(9.75 , 1.00) (0.00 , N/A , 0.0)	3373.6 1345.1	0.0242 99.1 104.2	10.1335	N/A			
NMeFOSA	(512.0 / 219.0) 2701971 (512.0 / 169.0) 2282737	(10.41 , 1.00) (0.00 , N/A , 1.4)	4370.8 5712.3	0.8448 99.5 99.2	9.6705	N/A			
NEtFOSA	(526.0 / 219.0) 2958777 (526.0 / 169.0) 3730047	(10.58 , 1.00) (-0.01 , N/A , 0.8)	4419.7 6486.7	1.2607 100.1 98.2	8.8419	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) 1235453	(10.35 , 1.00) (0.01 , N/A , 0.0)	1807.5	N/A 0.0 0.0	9.9613	N/A			
NEtFOSE	(630.0 / 59.0) 1528301	(10.53 , 1.00) (0.01 , N/A , 0.0)	1122.0	N/A 0.0 0.0	9.6613	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (4)
Acquired: 2023/04/07 - 16:56

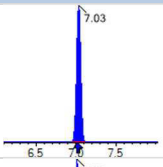
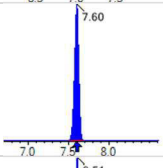
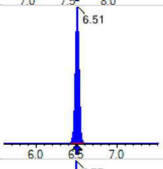
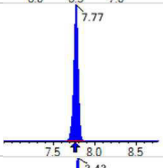
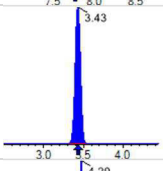
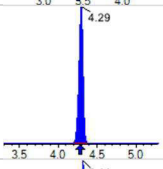
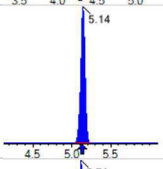
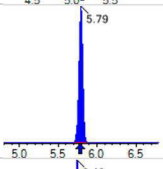
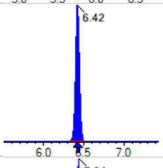
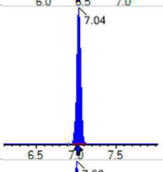
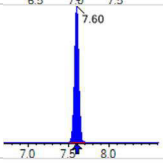
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 128037	(3.43 , N/A) (N/A , 0.00 , N/A)	1766.1	N/A	1.1231 [1.0000]	112.3% { 120.6% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 128768	(5.15 , N/A) (N/A , 0.01 , N/A)	3248.8	N/A	0.9331 [1.0000]	93.3% { 105.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 309884	(6.42 , N/A) (N/A , 0.01 , N/A)	2620.6	N/A	0.9977 [1.0000]	99.8% { 115.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (4)
Acquired: 2023/04/07 - 16:56

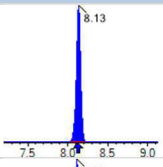
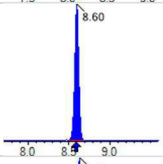
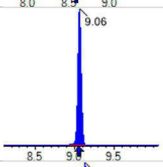
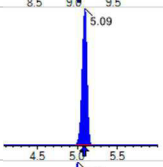
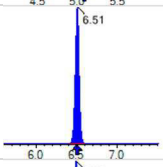
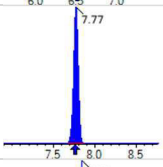
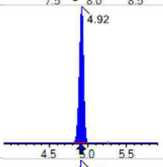
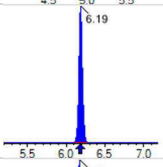
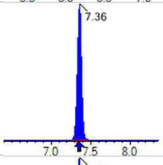
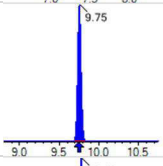
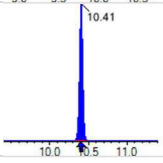
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 326432	(7.03 , N/A) (N/A , 0.01 , N/A)	2574.1	N/A	1.1073 [1.0000]	110.7% { 113.1% }			
13C2_PFDA_IIS	(515.0 / 470.1) 325694	(7.60 , N/A) (N/A , 0.01 , N/A)	31877.6	N/A	1.0506 [1.0000]	105.1% { 108.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 453924	(6.51 , N/A) (N/A , 0.01 , N/A)	1807.4	N/A	1.0119 [1.0000]	101.2% { 105.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 707870	(7.77 , N/A) (N/A , 0.01 , N/A)	2197.2	N/A	1.0172 [1.0000]	101.7% { 109.9% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1117251	(3.43 , N/A) (N/A , 0.00 , N/A)	4542.7	N/A	8.1364 [8.0000]	101.7% { 113.6% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 959475	(4.29 , N/A) (N/A , 0.01 , N/A)	3157.2	N/A	4.7196 [4.0000]	118.0% { 115.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 539729	(5.14 , N/A) (N/A , 0.01 , N/A)	2504.7	N/A	2.1908 [2.0000]	109.5% { 113.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 586967	(5.79 , N/A) (N/A , 0.01 , N/A)	1738.8	N/A	2.3792 [2.0000]	119.0% { 116.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 634980	(6.42 , N/A) (N/A , 0.01 , N/A)	3814.4	N/A	1.9906 [2.0000]	99.5% { 103.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 314865	(7.04 , N/A) (N/A , 0.01 , N/A)	27490.2	N/A	0.9901 [1.0000]	99.0% { 106.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 362911	(7.60 , N/A) (N/A , 0.01 , N/A)	2560.0	N/A	1.0201 [1.0000]	102.0% { 102.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (4)
Acquired: 2023/04/07 - 16:56

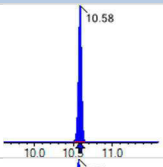
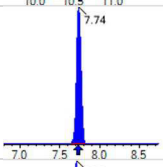
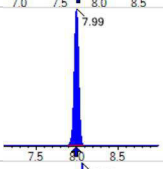
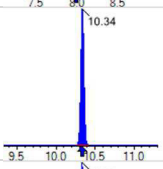
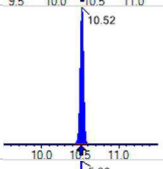
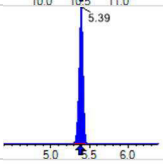
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 378921	(8.13 , N/A) (N/A , 0.01 , N/A)	52387.5	N/A	1.1048 [1.0000]	110.5% { 121.7% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 290238	(8.60 , N/A) (N/A , 0.01 , N/A)	1530.9	N/A	0.9358 [1.0000]	93.6% { 104.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 321592	(9.06 , N/A) (N/A , 0.01 , N/A)	1272.9	N/A	1.0826 [1.0000]	108.3% { 121.2% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1269608	(5.09 , N/A) (N/A , 0.01 , N/A)	2699.7	N/A	2.1415 [2.0000]	107.1% { 107.4% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 841693	(6.51 , N/A) (N/A , 0.01 , N/A)	3054.1	N/A	1.9835 [2.0000]	99.2% { 108.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1784772	(7.77 , N/A) (N/A , 0.01 , N/A)	2966.5	N/A	2.0710 [2.0000]	103.6% { 113.4% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 241922	(4.92 , N/A) (N/A , 0.01 , N/A)	1330.2	N/A	4.4576 [4.0000]	111.4% { 119.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 288476	(6.19 , N/A) (N/A , 0.00 , N/A)	29583.1	N/A	4.0043 [4.0000]	100.1% { 115.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 328266	(7.36 , N/A) (N/A , 0.01 , N/A)	2528.2	N/A	3.7015 [4.0000]	92.5% { 101.8% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3028144	(9.75 , N/A) (N/A , 0.01 , N/A)	5063.7	N/A	2.0768 [2.0000]	103.8% { 106.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 681831	(10.41 , N/A) (N/A , 0.01 , N/A)	2578.7	N/A	2.0618 [2.0000]	103.1% { 110.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-PEM1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (4)
Acquired: 2023/04/07 - 16:56

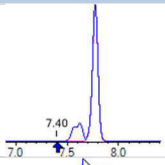
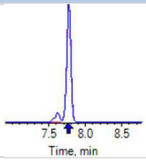
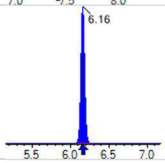
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D5_NEtFOSA_EIS	(531.0 / 169.0) 617787	(10.58 , N/A) (N/A , 0.01 , N/A)	3129.4	N/A	2.2816 [2.0000]	114.1% { 113.0% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 765165	(7.74 , N/A) (N/A , 0.01 , N/A)	2944.6	N/A	4.2315 [4.0000]	105.8% { 113.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 607336	(7.99 , N/A) (N/A , 0.01 , N/A)	4694.5	N/A	4.0898 [4.0000]	102.2% { 109.5% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 2390630	(10.34 , N/A) (N/A , 0.01 , N/A)	2477.4	N/A	22.5009 [20.0000]	112.5% { 116.2% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 3232690	(10.52 , N/A) (N/A , 0.01 , N/A)	2244.5	N/A	22.9940 [20.0000]	115.0% { 119.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1127650	(5.39 , N/A) (N/A , 0.01 , N/A)	2971.8	N/A	8.9197 [8.0000]	111.5% { 114.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC01368-PEM2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (5)
Acquired: 2023/04/07 - 17:09

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
PFOS	(499.0 / 80.0) 29384 (499.0 / 99.0) N/A	(7.40 , 0.95) (-0.37 , N/A , #Value!)	21.6	N/A 0.0 0.0	0.0284	N/A			
TDCA	(499.0 / 80.0) 7178984	(6.16 , 0.79) (N/A , #Value! , 0.0)	16495.8	N/A 0.0 0.0	8.2508	N/A			

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

7.40 - 6.16 = 1.24 Pass

QUALITY CONTROL RAW DATA

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0035-BLK1	File ID:	S2023-04-07B (7)
Sampled:		Prepared:	04/04/23 12:20	Analyzed:	04/07/23 17:34
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001
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	0.20 U	0.40	0.20	0.064	U
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:	23C0205
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0035-BLK1	File ID:	S2023-04-07B (7)
Sampled:		Prepared:	04/04/23 12:20	Analyzed:	04/07/23 17:34
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001
Instrument:	Saphira				
Column:	1				

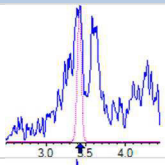
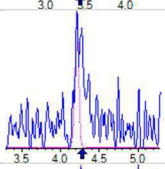
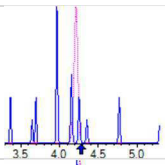
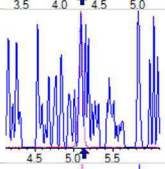
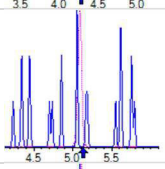
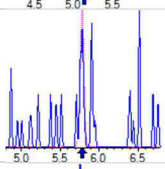
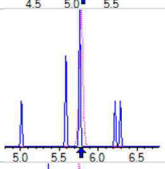
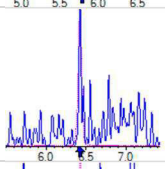
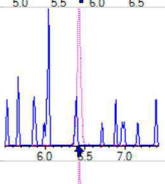
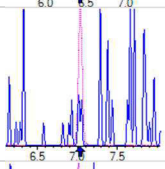
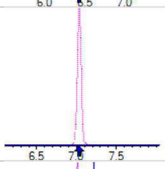
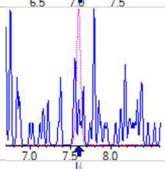
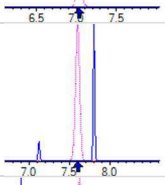
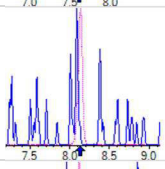
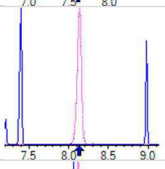
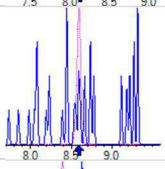
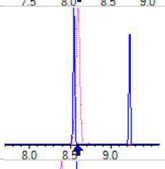
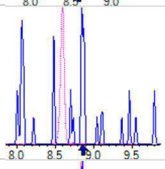
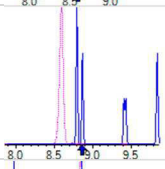
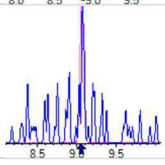
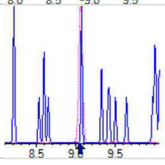
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.40 U	0.80	0.40	0.12	U
PFEESA	0.40 U	0.80	0.40	0.11	U
PFMPA	0.40 U	0.80	0.40	0.054	U
PFMBA	0.40 U	0.80	0.40	0.091	U
NFDHA	0.40 U	0.80	0.40	0.30	U
9CL-PF3ONS	0.40 U	0.80	0.40	0.21	U
11CL-PF3OUDS	0.40 U	0.80	0.40	0.21	U
3:3FTCA	0.80 U	1.6	0.80	0.57	U
5:3FTCA	0.80 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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (7)
Acquired: 2023/04/07 - 17:34

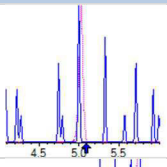
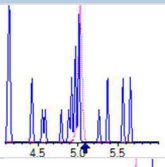
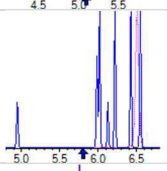
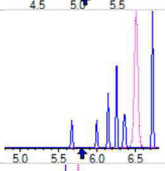
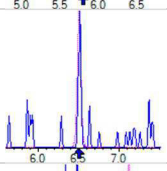
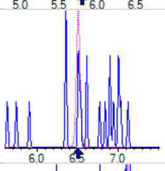
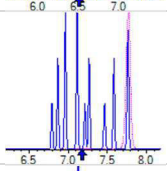
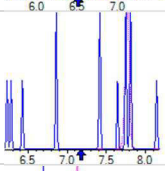
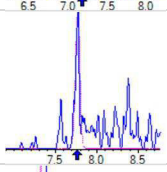
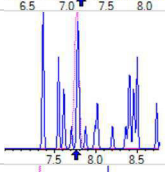
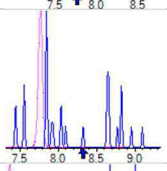
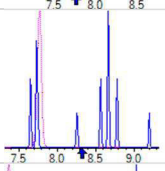
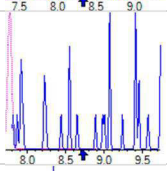
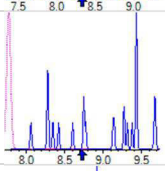
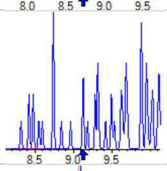
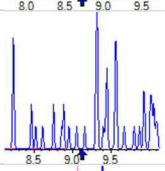
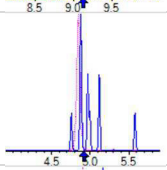
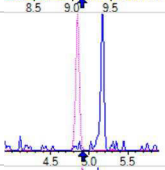
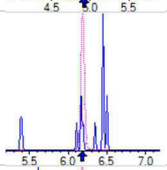
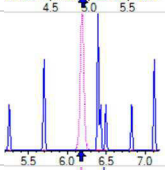
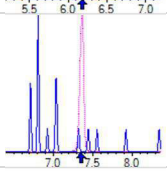
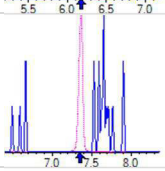
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (7)
Acquired: 2023/04/07 - 17:34

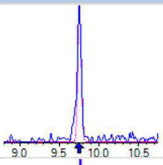
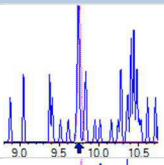
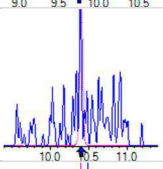
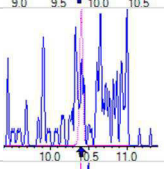
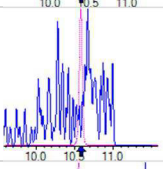
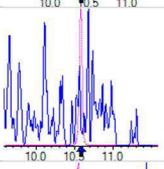
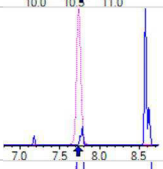
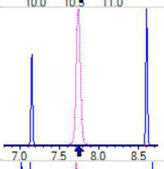
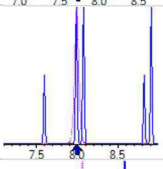
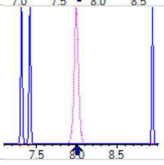
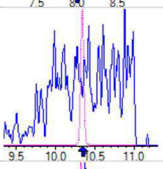
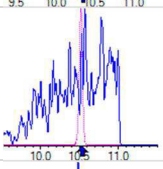
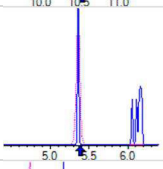
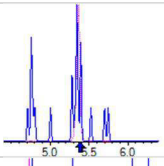
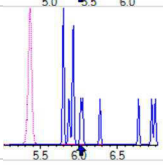
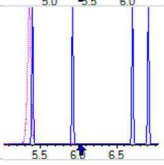
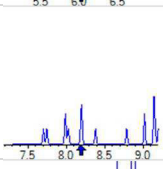
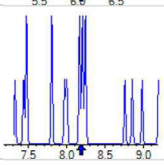
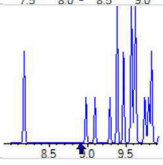
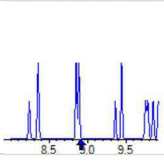
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (7)
Acquired: 2023/04/07 - 17:34

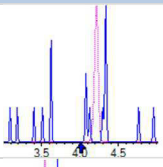
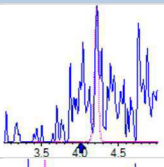
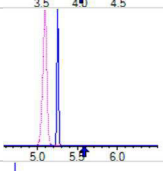
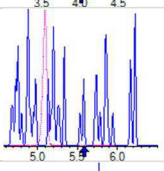
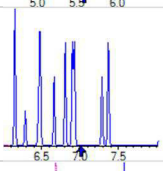
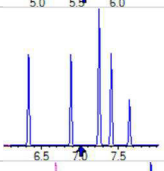
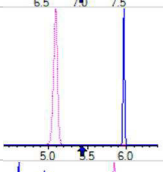
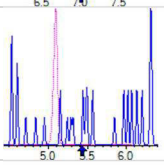
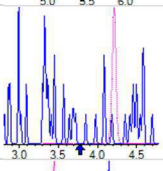
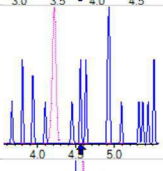
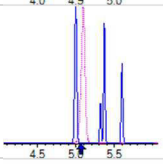
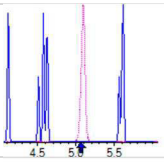
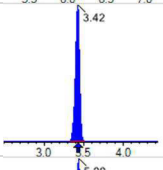
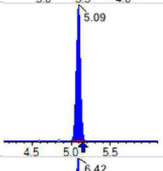
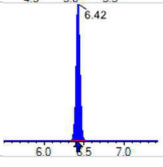
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (7)
Acquired: 2023/04/07 - 17:34

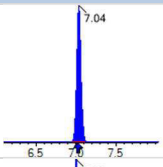
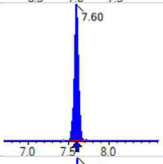
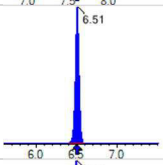
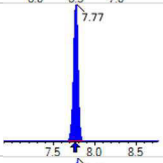
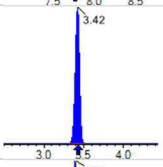
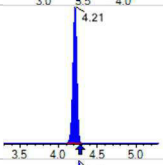
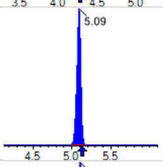
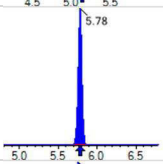
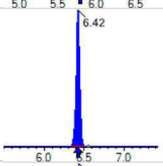
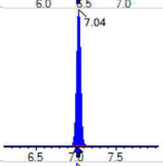
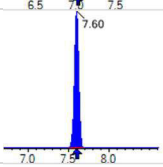
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 125507	(3.42 , N/A) (N/A , 0.00 , N/A)	1760.5	N/A	1.1009 [1.0000]	110.1% { 118.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 126337	(5.09 , N/A) (N/A , -0.05 , N/A)	1222.7	N/A	0.9155 [1.0000]	91.5% { 103.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 306953	(6.42 , N/A) (N/A , 0.01 , N/A)	2673.6	N/A	0.9882 [1.0000]	98.8% { 113.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (7)
Acquired: 2023/04/07 - 17:34

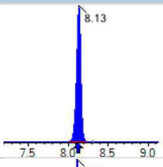
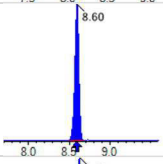
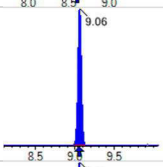
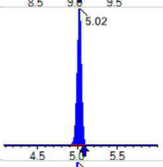
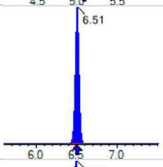
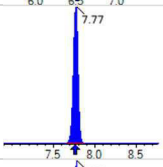
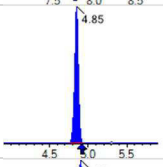
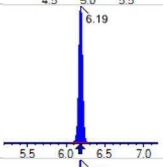
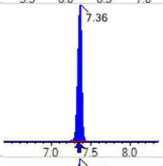
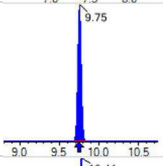
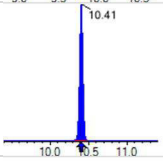
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 280910	(7.04 , N/A) (N/A , 0.01 , N/A)	4373276.9	N/A	0.9529 [1.0000]	95.3% { 97.3% }			
13C2_PFDA_IIS	(515.0 / 470.1) 324082	(7.60 , N/A) (N/A , 0.00 , N/A)	3905.0	N/A	1.0454 [1.0000]	104.5% { 107.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 471385	(6.51 , N/A) (N/A , 0.01 , N/A)	3013.2	N/A	1.0509 [1.0000]	105.1% { 109.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 771634	(7.77 , N/A) (N/A , 0.01 , N/A)	1843.6	N/A	1.1088 [1.0000]	110.9% { 119.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1149090	(3.42 , N/A) (N/A , 0.00 , N/A)	4459.7	N/A	8.5369 [8.0000]	106.7% { 116.9% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1020911	(4.21 , N/A) (N/A , -0.07 , N/A)	3441.0	N/A	5.1184 [4.0000]	128.0% { 122.3% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 599056	(5.09 , N/A) (N/A , -0.04 , N/A)	3165.9	N/A	2.4783 [2.0000]	123.9% { 125.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 595394	(5.78 , N/A) (N/A , 0.00 , N/A)	2943.3	N/A	2.4598 [2.0000]	123.0% { 118.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 675872	(6.42 , N/A) (N/A , 0.01 , N/A)	3879.5	N/A	2.1390 [2.0000]	106.9% { 110.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 330364	(7.04 , N/A) (N/A , 0.01 , N/A)	519.9	N/A	1.2072 [1.0000]	120.7% { 111.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 381819	(7.60 , N/A) (N/A , 0.00 , N/A)	2536.6	N/A	1.0786 [1.0000]	107.9% { 108.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (7)
Acquired: 2023/04/07 - 17:34

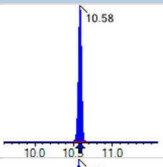
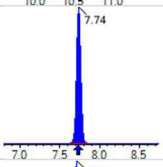
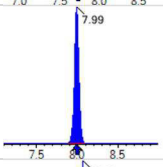
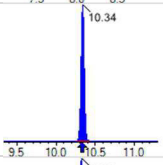
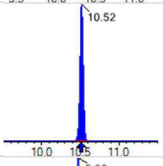
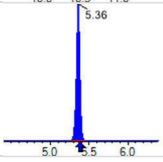
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 382688	(8.13 , N/A) (N/A , 0.01 , N/A)	2778.1	N/A	1.1214 [1.0000]	112.1% { 122.9% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 313598	(8.60 , N/A) (N/A , 0.01 , N/A)	394243.8	N/A	1.0162 [1.0000]	101.6% { 112.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 305294	(9.06 , N/A) (N/A , 0.01 , N/A)	1327.8	N/A	1.0328 [1.0000]	103.3% { 115.1% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1301301	(5.02 , N/A) (N/A , -0.05 , N/A)	4035.1	N/A	2.1137 [2.0000]	105.7% { 110.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 921745	(6.51 , N/A) (N/A , 0.01 , N/A)	2076.8	N/A	2.0917 [2.0000]	104.6% { 118.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1839591	(7.77 , N/A) (N/A , 0.01 , N/A)	2879.6	N/A	1.9583 [2.0000]	97.9% { 116.8% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 258656	(4.85 , N/A) (N/A , -0.06 , N/A)	2011.5	N/A	4.5895 [4.0000]	114.7% { 127.6% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 334907	(6.19 , N/A) (N/A , 0.01 , N/A)	1783.1	N/A	4.4766 [4.0000]	111.9% { 133.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 404917	(7.36 , N/A) (N/A , 0.01 , N/A)	1651.3	N/A	4.3967 [4.0000]	109.9% { 125.5% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3056869	(9.75 , N/A) (N/A , 0.01 , N/A)	2905.6	N/A	1.9233 [2.0000]	96.2% { 107.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 409936	(10.41 , N/A) (N/A , 0.01 , N/A)	1857.7	N/A	1.1372 [2.0000]	56.9% { 66.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (7)
Acquired: 2023/04/07 - 17:34

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) 358746	(10.58 , N/A) (N/A , 0.00 , N/A)	2284.9	N/A	1.2155 [2.0000]	60.8% { 65.6% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 788185	(7.74 , N/A) (N/A , 0.00 , N/A)	2052.3	N/A	3.9986 [4.0000]	100.0% { 117.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 619086	(7.99 , N/A) (N/A , 0.01 , N/A)	15033.2	N/A	3.8245 [4.0000]	95.6% { 111.7% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1686121	(10.34 , N/A) (N/A , 0.01 , N/A)	1506.6	N/A	14.5585 [20.0000]	72.8% { 82.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2581102	(10.52 , N/A) (N/A , 0.01 , N/A)	2433.4	N/A	16.8421 [20.0000]	84.2% { 95.2% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1220862	(5.36 , N/A) (N/A , -0.03 , N/A)	2716.6	N/A	9.8427 [8.0000]	123.0% { 123.8% }			

ANALYSIS DATA SHEET

LCS

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0035-BS1	File ID:	S2023-04-07B (8)
Sampled:		Prepared:	04/04/23 12:20	Analyzed:	04/07/23 17:47
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	DL	Q
PFBA	16.7	1.6	0.21	
PFPEA	7.86	0.80	0.065	
PFHXA	4.39	0.40	0.055	
PFHPA	4.41	0.40	0.041	
PFOA	3.99	0.40	0.15	
PFNA	4.44	0.40	0.082	
PFDA	3.74	0.40	0.10	
PFUnA	3.83	0.40	0.16	
PFDOA	4.66	0.40	0.11	
PFTRDA	4.40	0.40	0.20	
PFTEDA	4.22	0.40	0.20	
PFBS	3.65	0.40	0.037	
PFPES	3.88	0.40	0.063	
PFHXS	3.55	0.40	0.032	
PFHPS	3.61	0.40	0.051	
PFOS	3.54	0.40	0.064	
PFNS	3.80	0.40	0.12	
PFDS	3.83	0.40	0.15	
PFDOS	3.78	0.40	0.12	
4:2FTS	14.1	1.6	0.29	
6:2FTS	16.4	1.6	0.31	
8:2FTS	17.3	1.6	0.082	
PFOSA	4.20	0.40	0.10	
NMeFOSA	17.7	1.6	0.47	
NEtFOSA	16.7	1.6	0.41	
NMeFOSAA	3.95	0.40	0.11	
NEtFOSAA	4.20	0.40	0.11	
NMeFOSE	15.9	1.6	1.0	
NEtFOSE	15.4	1.6	1.0	
HFPO-DA	8.10	[illegible]	[illegible]	

ANALYSIS DATA SHEET

LCS

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0035-BS1	File ID:	S2023-04-07B (8)
Sampled:		Prepared:	04/04/23 12:20	Analyzed:	04/07/23 17:47
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001
Instrument:	Saphira				
Column:	1				

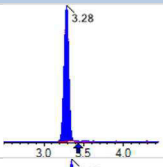
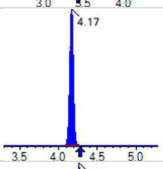
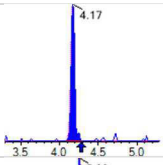
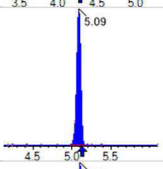
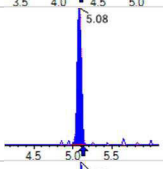
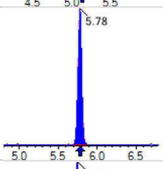
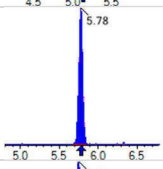
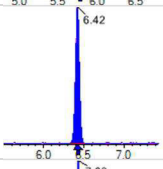
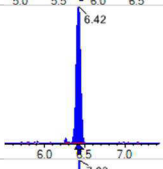
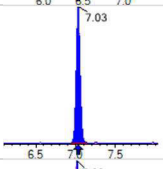
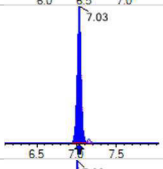
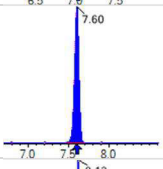
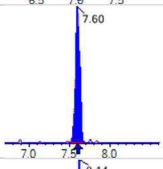
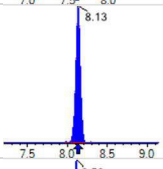
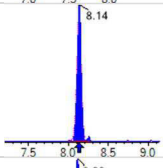
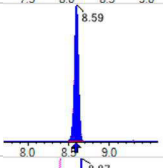
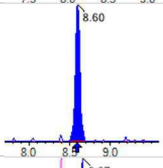
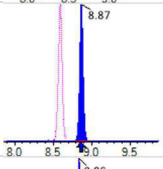
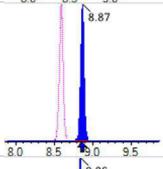
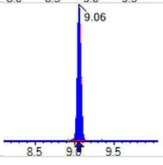
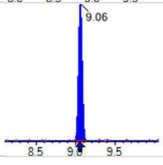
COMPOUND	CONC. (ng/L)	LOQ	DL	Q
ADONA	8.22	0.80	0.12	
PFEESA	7.19	0.80	0.11	
PFMPA	7.40	0.80	0.054	
PFMBA	7.36	0.80	0.091	
NFDHA	8.02	0.80	0.30	
9CL-PF3ONS	7.72	0.80	0.21	
11CL-PF3OUDS	7.22	0.80	0.21	
3:3FTCA	13.9	1.6	0.57	
5:3FTCA	17.0	1.6	0.44	
7:3FTCA	14.6	1.6	0.55	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (8)
Acquired: 2023/04/07 - 17:47

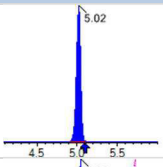
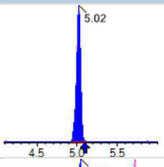
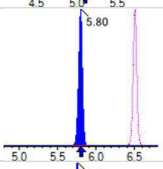
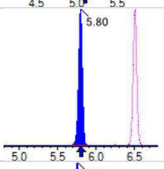
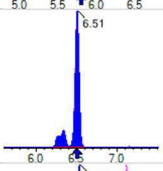
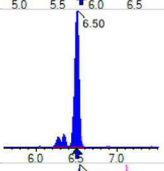
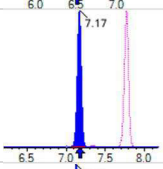
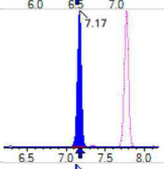
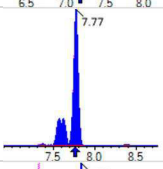
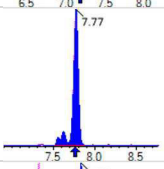
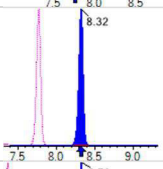
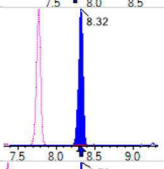
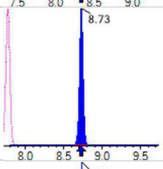
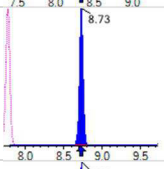
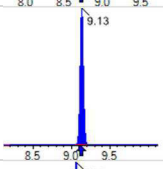
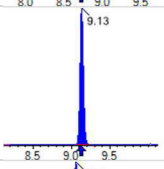
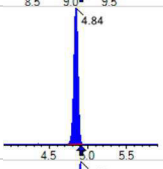
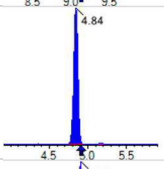
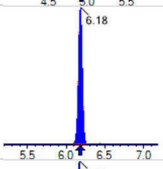
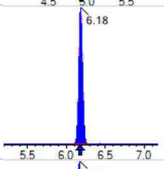
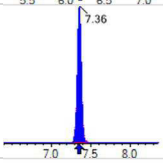
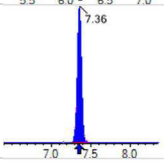
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 470592	(3.28 , 1.00) (0.00 , N/A , 0.0)	174.4	N/A 0.0 0.0	4.1737 [4.0000]	104.3%			
PFPeA	(263.0 / 219.0) 472335 (263.0 / 69.0) 7230	(4.17 , 1.00) (0.00 , N/A , -0.3)	1886.9 10591.0	0.0153 124.3 124.5	1.9644 [2.0000]	98.2%			
PFHxA	(313.0 / 269.0) 313981 (313.0 / 119.0) 26910	(5.09 , 1.00) (0.00 , N/A , 0.5)	1181.9 502.4	0.0857 84.8 90.7	1.0980 [1.0000]	109.8%			
PFHpA	(363.0 / 319.0) 272732 (363.0 / 169.0) 75404	(5.78 , 1.00) (0.00 , N/A , 0.1)	2037.0 13469.8	0.2765 93.2 83.1	1.1020 [1.0000]	110.2%			
PFOA	(413.0 / 369.0) 355733 (413.0 / 169.0) 109526	(6.42 , 1.00) (0.00 , N/A , 0.1)	886.7 242812.9	0.3079 91.5 96.4	0.9986 [1.0000]	99.9%			
PFNA	(463.0 / 419.0) 318468 (463.0 / 169.0) 72973	(7.03 , 1.00) (0.00 , N/A , -0.1)	2191.8 399.8	0.2291 101.9 107.8	1.1091 [1.0000]	110.9%			
PFDA	(513.0 / 469.0) 361995 (513.0 / 169.0) 39877	(7.60 , 1.00) (0.00 , N/A , 0.2)	861.3 1019.3	0.1102 91.5 103.7	0.9341 [1.0000]	93.4%			
PFUnA	(563.0 / 519.0) 350073 (563.0 / 169.0) 37404	(8.13 , 1.00) (0.00 , N/A , -0.1)	1143.7 2847.6	0.1068 103.5 86.5	0.9583 [1.0000]	95.8%			
PFDoA	(613.0 / 569.0) 327444 (613.0 / 169.0) 44942	(8.59 , 1.00) (0.00 , N/A , -0.2)	1074.8 361.9	0.1372 91.8 83.5	1.1642 [1.0000]	116.4%			
PFTrDA	(663.0 / 619.0) 286480 (663.0 / 169.0) 78755	(8.87 , 1.03) (N/A , 0.00 , 0.0)	1536.3 181165.2	0.2749 107.2 109.9	1.1001 [1.0000]	110.0%			
PFTeDA	(713.0 / 669.0) 293217 (713.0 / 169.0) 62772	(9.06 , 1.00) (0.00 , N/A , -0.2)	1262.7 666.3	0.2141 107.4 98.7	1.0546 [1.0000]	105.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (8)
Acquired: 2023/04/07 - 17:47

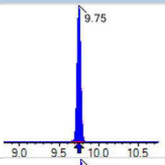
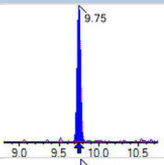
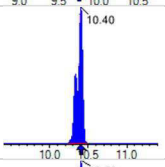
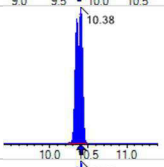
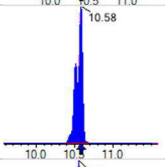
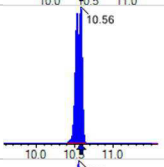
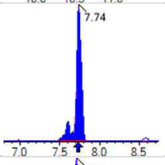
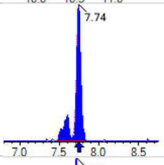
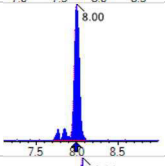
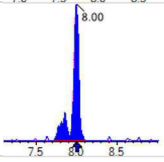
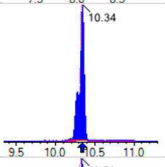
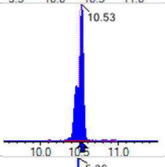
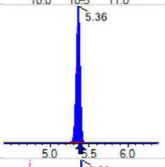
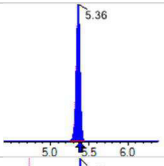
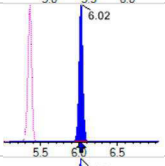
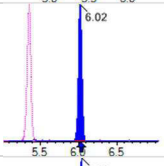
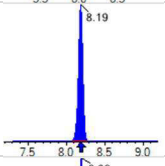
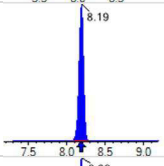
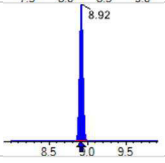
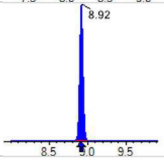
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 430769 (299.0 / 99.0) 276609	(5.02 , 1.00) (0.00 , N/A , -0.1)	7037.3 3556.7	0.6421 97.9 97.3	0.9113 [0.8847]	103.0%			
PFPeS	(349.0 / 80.0) 811801 (349.0 / 99.0) 307029	(5.80 , 0.89) (N/A , 0.00 , 0.0)	2969.9 2949.1	0.3782 111.3 100.6	0.9710 [0.9384]	103.5%			
PFHxS	(399.0 / 80.0) 608435 (399.0 / 99.0) 251214	(6.51 , 1.00) (0.00 , N/A , 0.2)	394954.7 1517.0	0.4129 115.4 114.7	0.8879 [0.9110]	97.5%			
PFHpS	(449.0 / 80.0) 738322 (449.0 / 99.0) 196364	(7.17 , 0.92) (N/A , 0.00 , -0.1)	5201.0 2374.7	0.2660 94.6 90.0	0.9017 [0.9514]	94.8%			
PFOS	(499.0 / 80.0) 988260 (499.0 / 99.0) 223741	(7.77 , 1.00) (0.00 , N/A , -0.1)	10529.7 1162.0	0.2264 104.3 97.3	0.8853 [0.9275]	95.5%			
PFNS	(549.0 / 80.0) 934454 (549.0 / 99.0) 227782	(8.32 , 1.07) (N/A , 0.01 , 0.0)	6866.1 394785.6	0.2438 95.8 98.3	0.9496 [0.9599]	98.9%			
PFDS	(599.0 / 80.0) 1142399 (599.0 / 99.0) 269223	(8.73 , 1.12) (N/A , 0.01 , 0.0)	9416.9 3523.2	0.2357 98.6 102.7	0.9584 [0.9631]	99.5%			
PFDoS	(699.0 / 80.0) 908048 (699.0 / 99.0) 204714	(9.13 , 1.18) (N/A , 0.00 , 0.0)	3046.8 1145.0	0.2254 100.7 99.4	0.9453 [0.9696]	97.5%			
4:2FTS	(327.0 / 307.0) 682564 (327.0 / 81.0) 460241	(4.84 , 1.00) (0.00 , N/A , 0.0)	2964.3 1343.0	0.6743 111.8 116.9	3.5337 [3.7381]	94.5%			
6:2FTS	(427.0 / 407.0) 518513 (427.0 / 81.0) 353981	(6.18 , 1.00) (0.00 , N/A , 0.1)	3615.2 3024.2	0.6827 96.2 94.4	4.1056 [3.7962]	108.2%			
8:2FTS	(527.0 / 507.0) 582782 (527.0 / 81.0) 410388	(7.36 , 1.00) (0.00 , N/A , -0.1)	2568.8 1360.3	0.7042 92.1 96.1	4.3176 [3.8332]	112.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (8)
Acquired: 2023/04/07 - 17:47

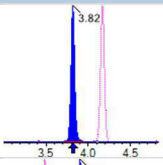
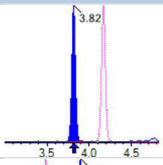
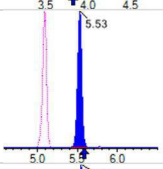
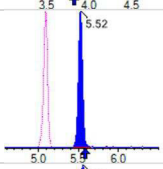
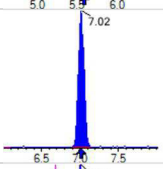
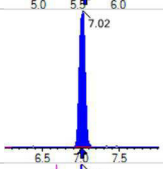
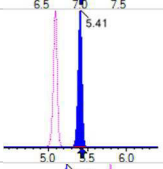
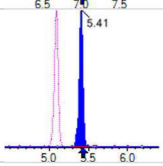
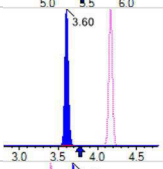
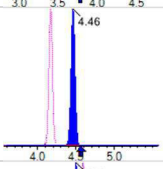
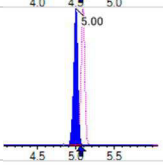
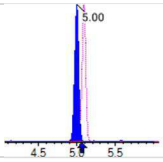
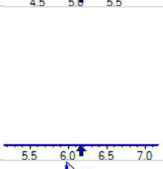
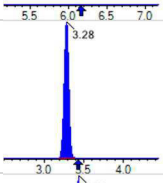
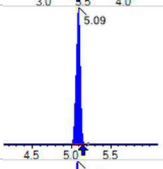
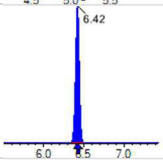
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 1352994 (498.0 / 478.0) 28158	(9.75 , 1.00) (0.00 , N/A , 0.1)	3235.2 313.0	0.0208 85.2 89.6	1.0507 [1.0000]	105.1%			
NMeFOSA	(512.0 / 219.0) 643456 (512.0 / 169.0) 545420	(10.40 , 1.00) (0.00 , N/A , 1.4)	2898.2 2560.8	0.8476 99.8 99.6	4.4332 [4.0000]	110.8%			
NEtFOSA	(526.0 / 219.0) 678506 (526.0 / 169.0) 809345	(10.58 , 1.00) (0.00 , N/A , 1.1)	3268.6 3926.7	1.1928 94.7 92.9	4.1755 [4.0000]	104.4%			
NMeFOSAA	(570.0 / 419.0) 159184 (570.0 / 483.0) 80006	(7.74 , 1.00) (0.00 , N/A , -0.1)	6096.5 256.4	0.5026 97.8 112.8	0.9885 [1.0000]	98.9%			
NEtFOSAA	(584.0 / 419.0) 146187 (584.0 / 526.0) 76976	(8.00 , 1.00) (0.01 , N/A , 0.0)	3109.3 10588.2	0.5266 86.2 86.8	1.0504 [1.0000]	105.0%			
NMeFOSE	(616.0 / 59.0) 352242	(10.34 , 1.00) (0.01 , N/A , 0.0)	717.6	N/A 0.0 0.0	3.9742 [4.0000]	99.4%			
NEtFOSE	(630.0 / 59.0) 477133	(10.53 , 1.00) (0.01 , N/A , 0.0)	717.0	N/A 0.0 0.0	3.8472 [4.0000]	96.2%			
HFPO-DA	(285.0 / 169.0) 297965 (285.0 / 185.0) 681194	(5.36 , 1.00) (0.00 , N/A , 0.1)	1814.3 2205.5	2.2862 78.0 83.5	2.0259 [2.0000]	101.3%			
ADONA	(377.0 / 85.0) 1105493 (377.0 / 251.0) 101294	(6.02 , 1.12) (N/A , 0.00 , 0.0)	2693.4 1226.0	0.0916 88.3 96.5	2.0561 [1.8854]	109.1%			
9Cl-Pf3ONS	(531.0 / 351.0) 3075698 (533.0 / 353.0) 924409	(8.19 , 1.53) (N/A , 0.01 , 0.1)	4624.0 1864.3	0.3006 93.2 94.4	1.9296 [1.8665]	103.4%			
11Cl-PF3OUDS	(631.0 / 451.0) 1897077 (633.0 / 453.0) 718410	(8.92 , 1.66) (N/A , 0.01 , 0.0)	3845.1 3388.9	0.3787 110.9 108.7	1.8061 [1.8864]	95.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (8)
Acquired: 2023/04/07 - 17:47

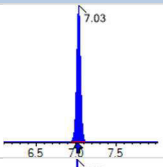
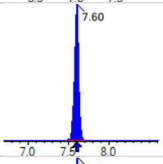
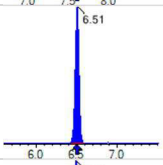
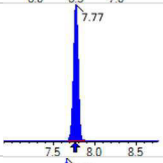
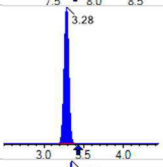
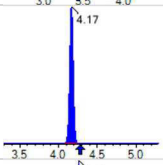
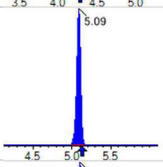
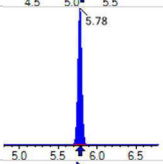
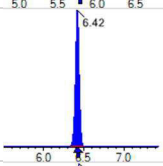
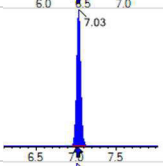
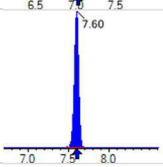
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 35808 (241.0 / 117.0) 49652	(3.82 , 0.92) (N/A , -0.19 , 0.1)	986.7 455.2	1.3866 90.1 94.8	3.4813 [4.0000]	87.0%			
5:3FTCA	(341.0 / 236.7) 210478 (341.0 / 217.0) 318241	(5.53 , 1.09) (N/A , -0.04 , 0.2)	1134.9 837.1	1.5120 80.8 89.1	4.2538 [4.0000]	106.3%			
7:3FTCA	(441.0 / 317.0) 329396 (441.0 / 337.0) 296525	(7.02 , 1.38) (N/A , 0.01 , 0.0)	938.3 935.0	0.9002 109.3 111.7	3.6555 [4.0000]	91.4%			
PFEESA	(315.0 / 135.0) 674642 (315.0 / 83.0) 154541	(5.41 , 1.06) (N/A , -0.03 , 0.0)	3059.2 484.0	0.2291 95.8 99.5	1.7974 [1.7849]	100.7%			
PFMPA	(229.0 / 85.0) 99273	(3.60 , 0.86) (N/A , -0.16 , 0.0)	2715.6	N/A 0.0 0.0	1.8503 [2.0000]	92.5%			
PFMBA	(279.0 / 85.0) 309112	(4.46 , 1.07) (N/A , -0.10 , 0.0)	2067.3	N/A 0.0 0.0	1.8409 [2.0000]	92.0%			
NFDHA	(295.0 / 201.0) 289499 (295.0 / 85.0) 298784	(5.00 , 0.98) (N/A , -0.05 , 0.1)	1194.9 1413.8	1.0321 105.7 113.5	2.0061 [2.0000]	100.3%			
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 [1.0000]	N/A%			BS2,
13C3_PFBA_IIS	(216.0 / 172.0) 117411	(3.28 , N/A) (N/A , -0.14 , N/A)	1897.9	N/A	1.0299 [1.0000]	103.0% { 110.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 128739	(5.09 , N/A) (N/A , -0.05 , N/A)	1972.2	N/A	0.9329 [1.0000]	93.3% { 105.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 327706	(6.42 , N/A) (N/A , 0.00 , N/A)	291079.2	N/A	1.0551 [1.0000]	105.5% { 121.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (8)
Acquired: 2023/04/07 - 17:47

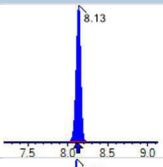
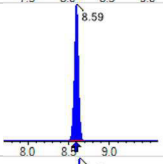
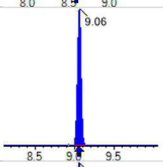
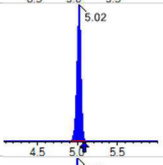
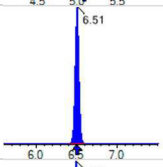
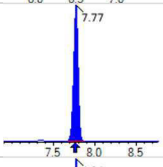
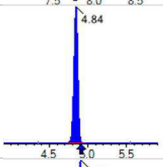
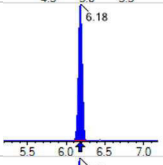
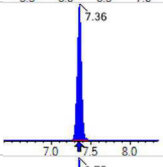
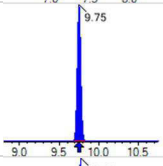
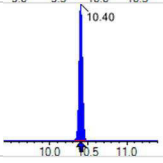
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 318089	(7.03 , N/A) (N/A , 0.01 , N/A)	11449.3	N/A	1.0790 [1.0000]	107.9% { 110.2% }			
13C2_PFDA_IIS	(515.0 / 470.1) 310845	(7.60 , N/A) (N/A , 0.01 , N/A)	1739.8	N/A	1.0027 [1.0000]	100.3% { 103.2% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 483071	(6.51 , N/A) (N/A , 0.01 , N/A)	5312.9	N/A	1.0769 [1.0000]	107.7% { 112.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 800103	(7.77 , N/A) (N/A , 0.01 , N/A)	2190.5	N/A	1.1497 [1.0000]	115.0% { 124.2% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1037532	(3.28 , N/A) (N/A , -0.14 , N/A)	4862.3	N/A	8.2397 [8.0000]	103.0% { 105.5% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1023638	(4.17 , N/A) (N/A , -0.12 , N/A)	4445.0	N/A	5.0364 [4.0000]	125.9% { 122.6% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 594240	(5.09 , N/A) (N/A , -0.05 , N/A)	2989.9	N/A	2.4126 [2.0000]	120.6% { 124.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 576978	(5.78 , N/A) (N/A , -0.01 , N/A)	4133.4	N/A	2.3392 [2.0000]	117.0% { 114.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 717329	(6.42 , N/A) (N/A , 0.00 , N/A)	2483.2	N/A	2.1264 [2.0000]	106.3% { 117.4% }			
13C9_PFNA_EIS	(472.0 / 427.0) 317758	(7.03 , N/A) (N/A , 0.01 , N/A)	3911.0	N/A	1.0254 [1.0000]	102.5% { 107.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 391283	(7.60 , N/A) (N/A , 0.00 , N/A)	246.0	N/A	1.1524 [1.0000]	115.2% { 110.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (8)
Acquired: 2023/04/07 - 17:47

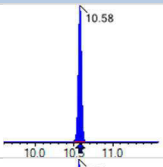
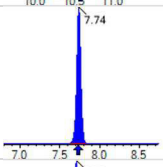
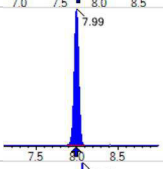
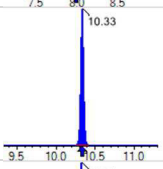
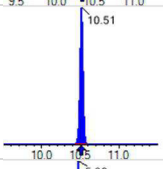
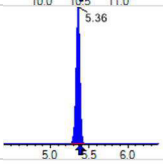
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 407727	(8.13 , N/A) (N/A , 0.01 , N/A)	3151.4	N/A	1.2456 [1.0000]	124.6% { 130.9% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 323663	(8.59 , N/A) (N/A , 0.01 , N/A)	1705.8	N/A	1.0934 [1.0000]	109.3% { 116.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 310058	(9.06 , N/A) (N/A , 0.01 , N/A)	2496.6	N/A	1.0936 [1.0000]	109.4% { 116.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1323915	(5.02 , N/A) (N/A , -0.06 , N/A)	2908.0	N/A	2.0984 [2.0000]	104.9% { 112.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 935331	(6.51 , N/A) (N/A , 0.00 , N/A)	3024.7	N/A	2.0712 [2.0000]	103.6% { 120.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1962852	(7.77 , N/A) (N/A , 0.01 , N/A)	2308.4	N/A	2.0151 [2.0000]	100.8% { 124.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 251797	(4.84 , N/A) (N/A , -0.06 , N/A)	1439.2	N/A	4.3597 [4.0000]	109.0% { 124.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 327605	(6.18 , N/A) (N/A , 0.00 , N/A)	1637.0	N/A	4.2730 [4.0000]	106.8% { 130.9% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 381405	(7.36 , N/A) (N/A , 0.00 , N/A)	3261.9	N/A	4.0412 [4.0000]	101.0% { 118.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 3032896	(9.75 , N/A) (N/A , 0.01 , N/A)	2973.0	N/A	1.8403 [2.0000]	92.0% { 106.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 354196	(10.40 , N/A) (N/A , 0.00 , N/A)	1594.7	N/A	0.9476 [2.0000]	47.4% { 57.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (8)
Acquired: 2023/04/07 - 17:47

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) 299996	(10.58 , N/A) (N/A , 0.00 , N/A)	2003.7	N/A	0.9802 [2.0000]	49.0% { 54.9% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 779338	(7.74 , N/A) (N/A , 0.01 , N/A)	2347.1	N/A	3.8130 [4.0000]	95.3% { 115.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 632446	(7.99 , N/A) (N/A , 0.01 , N/A)	3410.4	N/A	3.7680 [4.0000]	94.2% { 114.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1708418	(10.33 , N/A) (N/A , 0.01 , N/A)	1570.7	N/A	14.2262 [20.0000]	71.1% { 83.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2534496	(10.51 , N/A) (N/A , 0.00 , N/A)	2303.6	N/A	15.9496 [20.0000]	79.7% { 93.5% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1235446	(5.36 , N/A) (N/A , -0.03 , N/A)	3211.5	N/A	9.7745 [8.0000]	122.2% { 125.3% }			

ANALYSIS DATA SHEET

MRL Check

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0035-MRL1	File ID:	S2023-04-07B (9)
Sampled:		Prepared:	04/04/23 12:20	Analyzed:	04/07/23 18:00
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	DL	Q
PFBA	1.61	1.6	0.21	
PFPEA	0.770	0.80	0.065	J
PFHXA	0.458	0.40	0.055	
PFHPA	0.413	0.40	0.041	
PFOA	0.416	0.40	0.15	
PFNA	0.433	0.40	0.082	
PFDA	0.456	0.40	0.10	
PFUnA	0.418	0.40	0.16	
PFDOA	0.512	0.40	0.11	
PFTRDA	0.428	0.40	0.20	
PFTEDA	0.368	0.40	0.20	J
PFBS	0.425	0.40	0.037	
PFPES	0.352	0.40	0.063	J
PFHXS	0.574	0.40	0.032	
PFHPS	0.417	0.40	0.051	
PFOS	1.20	0.40	0.064	BS2, MI4
PFNS	0.341	0.40	0.12	J
PFDS	0.330	0.40	0.15	J
PFDOS	0.344	0.40	0.12	J
4:2FTS	1.49	1.6	0.29	J
6:2FTS	1.49	1.6	0.31	J
8:2FTS	1.30	1.6	0.082	J
PFOSA	0.455	0.40	0.10	
NMeFOSA	1.83	1.6	0.47	
NEtFOSA	1.64	1.6	0.41	
NMeFOSAA	0.423	0.40	0.11	
NEtFOSAA	0.432	0.40	0.11	
NMeFOSE	1.68	1.6	1.0	
NEtFOSE	1.55	1.6	1.0	J
HFPO-DA	0.775	[illegible]	[illegible]	J

ANALYSIS DATA SHEET

MRL Check

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling / 60697810	
Matrix:	Water	Laboratory ID:	BCD0035-MRL1	File ID:	S2023-04-07B (9)
Sampled:		Prepared:	04/04/23 12:20	Analyzed:	04/07/23 18:00
Solids:		Preparation:	EPA 1633	Dilution:	1
Batch:	BCD0035	Sequence:	SC01368	Calibration:	2315001
Instrument:	Saphira				
Column:	1				

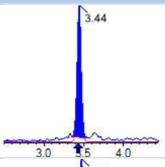
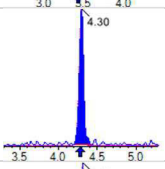
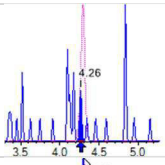
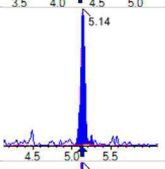
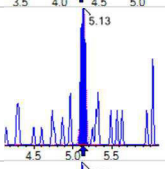
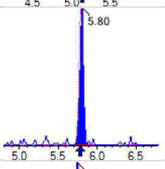
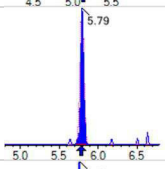
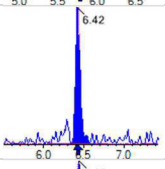
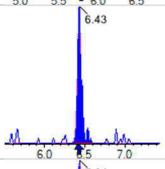
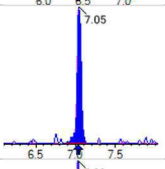
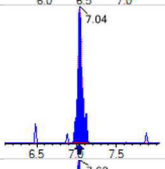
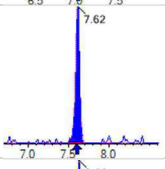
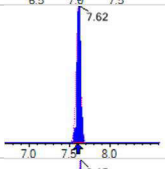
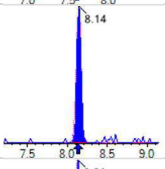
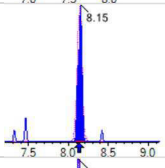
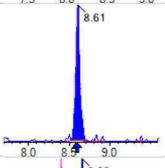
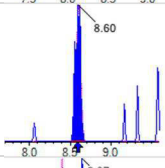
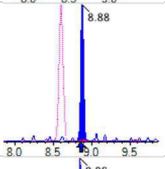
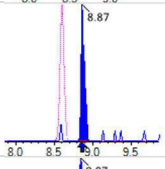
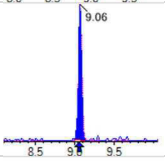
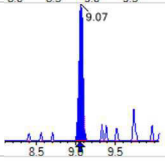
COMPOUND	CONC. (ng/L)	LOQ	DL	Q
ADONA	0.843	0.80	0.12	
PFEESA	0.661	0.80	0.11	J
PFMPA	0.742	0.80	0.054	J
PFMBA	0.834	0.80	0.091	
NFDHA	0.772	0.80	0.30	J
9CL-PF3ONS	0.799	0.80	0.21	J
11CL-PF3OUDS	0.732	0.80	0.21	J
3:3FTCA	1.50	1.6	0.57	J
5:3FTCA	1.32	1.6	0.44	IR2, J
7:3FTCA	1.58	1.6	0.55	J

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (9)
Acquired: 2023/04/07 - 18:00

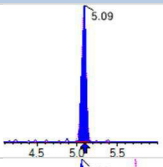
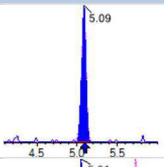
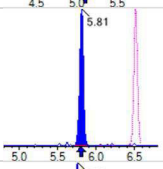
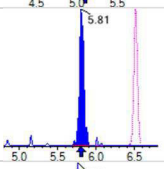
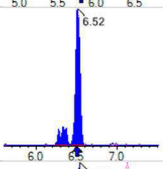
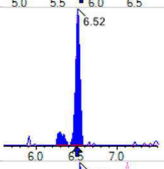
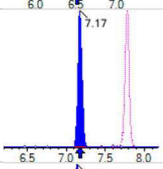
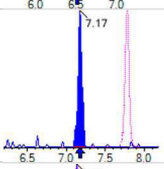
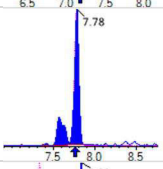
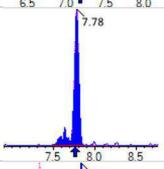
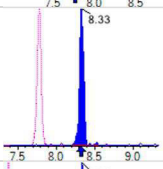
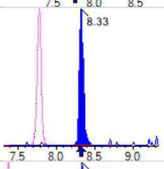
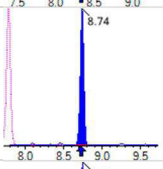
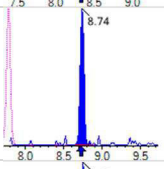
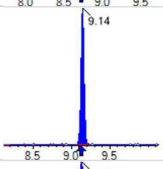
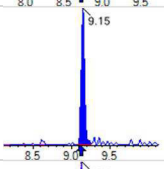
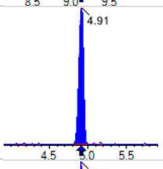
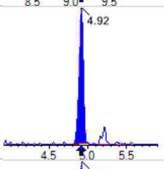
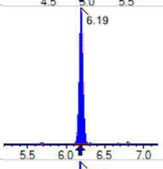
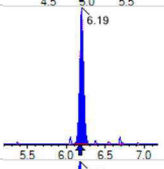
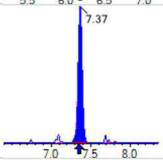
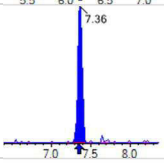
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 48667	(3.44 , 1.00) (0.00 , N/A , 0.0)	106.5	N/A 0.0 0.0	0.4017 [0.4000]	100.4%			
PFPeA	(263.0 / 219.0) 42647 (263.0 / 69.0) 175	(4.30 , 1.00) (0.00 , N/A , 2.0)	219.7 68.2	0.0041 33.3 33.4	0.1924 [0.2000]	96.2%			
PFHxA	(313.0 / 269.0) 30953 (313.0 / 119.0) 3325	(5.14 , 1.00) (0.00 , N/A , 0.8)	165.6 204.1	0.1074 106.3 113.7	0.1144 [0.1000]	114.4%			
PFHpA	(363.0 / 319.0) 25504 (363.0 / 169.0) 8066	(5.80 , 1.00) (0.01 , N/A , 0.6)	680.9 36759.2	0.3162 106.6 95.1	0.1032 [0.1000]	103.2%			
PFOA	(413.0 / 369.0) 35213 (413.0 / 169.0) 12597	(6.42 , 1.00) (-0.01 , N/A , -0.3)	90.0 4475.6	0.3577 106.3 112.0	0.1041 [0.1000]	104.1%			
PFNA	(463.0 / 419.0) 29015 (463.0 / 169.0) 7130	(7.05 , 1.00) (0.00 , N/A , 0.4)	1115.8 34431.7	0.2458 109.3 115.6	0.1082 [0.1000]	108.2%			
PFDA	(513.0 / 469.0) 41735 (513.0 / 169.0) 3838	(7.62 , 1.00) (0.01 , N/A , 0.0)	140.7 260480.0	0.0920 76.4 86.5	0.1141 [0.1000]	114.1%			
PFUnA	(563.0 / 519.0) 34201 (563.0 / 169.0) 5132	(8.14 , 1.00) (0.00 , N/A , -0.5)	166.9 16641.2	0.1501 145.3 121.5	0.1045 [0.1000]	104.5%			
PFDoA	(613.0 / 569.0) 31546 (613.0 / 169.0) 3811	(8.61 , 1.00) (0.00 , N/A , 0.5)	177.2 159.3	0.1208 80.8 73.5	0.1279 [0.1000]	127.9%			
PFTrDA	(663.0 / 619.0) 24411 (663.0 / 169.0) 4556	(8.88 , 1.03) (N/A , 0.02 , 0.6)	146.0 192.2	0.1866 72.8 74.6	0.1069 [0.1000]	106.9%			
PFTeDA	(713.0 / 669.0) 25377 (713.0 / 169.0) 5450	(9.06 , 1.00) (0.00 , N/A , -0.1)	176.5 82.0	0.2148 107.7 99.0	0.0919 [0.1000]	91.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (9)
Acquired: 2023/04/07 - 18:00

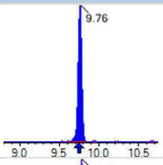
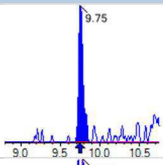
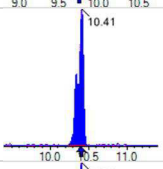
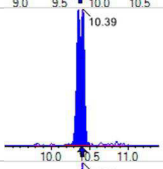
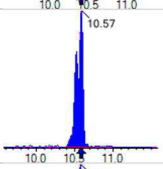
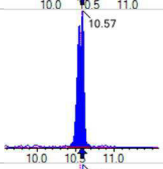
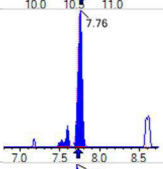
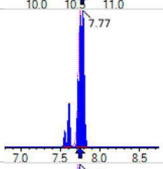
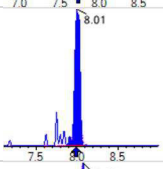
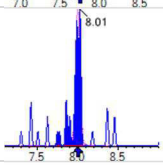
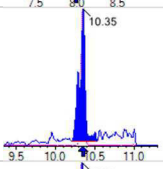
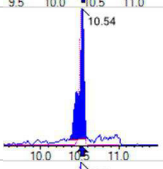
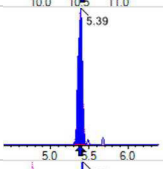
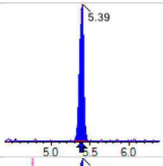
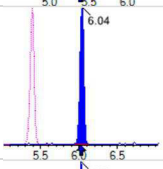
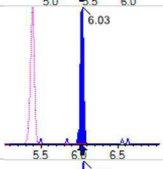
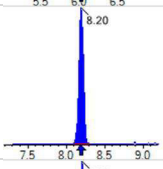
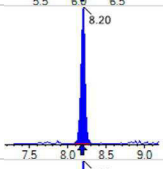
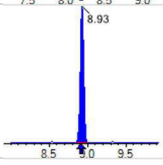
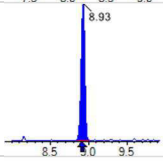
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 46687 (299.0 / 99.0) 23794	(5.09 , 1.00) (0.00 , N/A , 0.1)	2858.2 1914.1	0.5097 77.7 77.2	0.1062 [0.0885]	120.0%			
PFPeS	(349.0 / 80.0) 69977 (349.0 / 99.0) 27953	(5.81 , 0.89) (N/A , 0.01 , -0.1)	593.9 419.4	0.3995 117.6 106.3	0.0880 [0.0938]	93.8%			
PFHxS	(399.0 / 80.0) 93545 (399.0 / 99.0) 40974	(6.52 , 1.00) (0.00 , N/A , 0.0)	451.8 9693.0	0.4380 122.4 121.6	0.1435 [0.0911]	157.5%			
PFHpS	(449.0 / 80.0) 80050 (449.0 / 99.0) 23668	(7.17 , 0.92) (N/A , 0.01 , -0.1)	4429.5 406678.9	0.2957 105.2 100.1	0.1042 [0.0951]	109.5%			
PFOS	(499.0 / 80.0) 314908 (499.0 / 99.0) 78827	(7.78 , 1.00) (0.00 , N/A , 0.1)	4141.1 592.6	0.2503 115.3 107.5	0.3007 [0.0927]	324.2%			BS2,MI4 ABK 4/10/23
PFNS	(549.0 / 80.0) 78745 (549.0 / 99.0) 21866	(8.33 , 1.07) (N/A , 0.01 , 0.2)	3178505.0 1156.2	0.2777 109.1 112.0	0.0853 [0.0960]	88.8%			
PFDS	(599.0 / 80.0) 92235 (599.0 / 99.0) 24587	(8.74 , 1.12) (N/A , 0.02 , 0.0)	3950.5 432.5	0.2666 111.5 116.1	0.0825 [0.0963]	85.6%			
PFDoS	(699.0 / 80.0) 77588 (699.0 / 99.0) 19875	(9.14 , 1.18) (N/A , 0.02 , -0.3)	591.6 164.4	0.2562 114.4 112.9	0.0861 [0.0970]	88.8%			
4:2FTS	(327.0 / 307.0) 78510 (327.0 / 81.0) 46249	(4.91 , 1.00) (0.00 , N/A , -0.1)	760.7 217.0	0.5891 97.7 102.1	0.3714 [0.3738]	99.4%			
6:2FTS	(427.0 / 407.0) 45915 (427.0 / 81.0) 33261	(6.19 , 1.00) (0.00 , N/A , -0.2)	1017.9 437.9	0.7244 102.1 100.2	0.3719 [0.3796]	98.0%			
8:2FTS	(527.0 / 507.0) 41782 (527.0 / 81.0) 43097	(7.37 , 1.00) (0.00 , N/A , 0.2)	299.3 305.0	1.0315 134.9 140.7	0.3243 [0.3833]	84.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (9)
Acquired: 2023/04/07 - 18:00

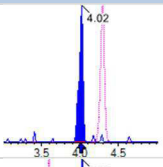
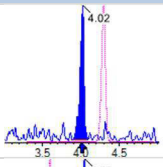
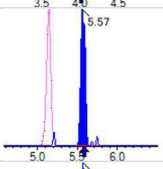
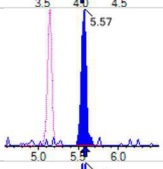
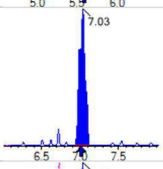
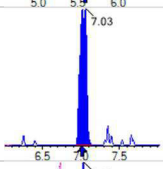
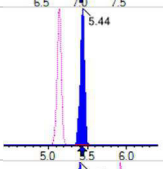
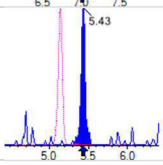
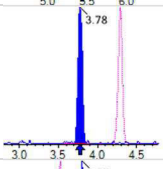
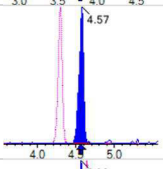
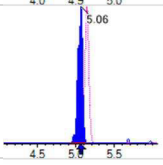
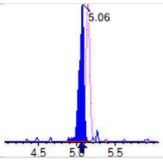
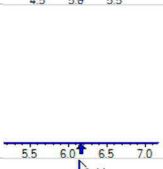
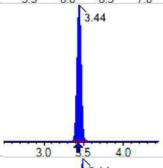
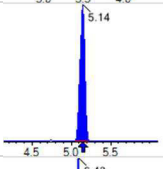
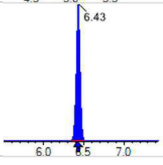
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 142394 (498.0 / 478.0) 3910	(9.76 , 1.00) (0.00 , N/A , 0.3)	891.4 42.3	0.0275 112.4 118.2	0.1136 [0.1000]	113.6%			
NMeFOSA	(512.0 / 219.0) 66148 (512.0 / 169.0) 52247	(10.41 , 1.00) (0.00 , N/A , 1.6)	568.3 411.2	0.7898 93.0 92.8	0.4564 [0.4000]	114.1%			
NEtFOSA	(526.0 / 219.0) 69192 (526.0 / 169.0) 79441	(10.57 , 1.00) (-0.01 , N/A , 0.2)	566.6 485.1	1.1481 91.1 89.4	0.4108 [0.4000]	102.7%			
NMeFOSAA	(570.0 / 419.0) 16114 (570.0 / 483.0) 5216	(7.76 , 1.00) (0.01 , N/A , -0.8)	598073.1 101423.6	0.3237 63.0 72.6	0.1058 [0.1000]	105.8%			
NEtFOSAA	(584.0 / 419.0) 14457 (584.0 / 526.0) 6685	(8.01 , 1.00) (0.00 , N/A , -0.2)	106.9 1653.0	0.4624 75.7 76.2	0.1080 [0.1000]	108.0%			
NMeFOSE	(616.0 / 59.0) 32441	(10.35 , 1.00) (0.01 , N/A , 0.0)	113.1	N/A 0.0 0.0	0.4188 [0.4000]	104.7%			
NEtFOSE	(630.0 / 59.0) 41410	(10.54 , 1.00) (0.01 , N/A , 0.0)	125.6	N/A 0.0 0.0	0.3870 [0.4000]	96.8%			
HFPO-DA	(285.0 / 169.0) 26455 (285.0 / 185.0) 84877	(5.39 , 1.00) (0.00 , N/A , -0.3)	733806.4 401.7	3.2083 109.5 117.2	0.1937 [0.2000]	96.8%			
ADONA	(377.0 / 85.0) 105270 (377.0 / 251.0) 10152	(6.04 , 1.12) (N/A , 0.01 , 0.2)	570.4 4628.6	0.0964 92.9 101.6	0.2108 [0.1885]	111.8%			
9Cl-Pf3ONS	(531.0 / 351.0) 295784 (533.0 / 353.0) 70399	(8.20 , 1.52) (N/A , 0.01 , 0.0)	643.6 307.1	0.2380 73.8 74.7	0.1998 [0.1867]	107.0%			
11Cl-PF3OUDS	(631.0 / 451.0) 178479 (633.0 / 453.0) 59032	(8.93 , 1.66) (N/A , 0.02 , 0.0)	1099.1 548.2	0.3308 96.9 94.9	0.1829 [0.1886]	97.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (9)
Acquired: 2023/04/07 - 18:00

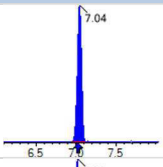
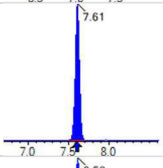
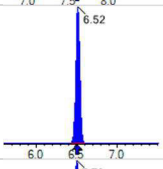
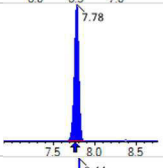
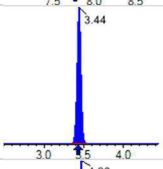
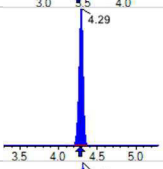
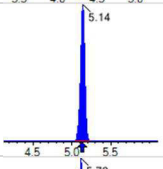
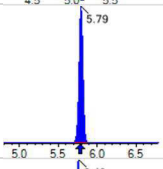
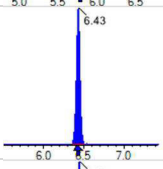
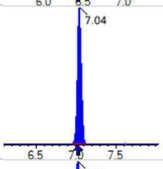
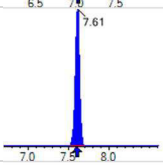
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 3544 (241.0 / 117.0) 6597	(4.02 , 0.94) (N/A , 0.01 , 0.2)	270.0 50.7	1.8615 121.0 127.3	0.3738 [0.4000]	93.4%			
5:3FTCA	(341.0 / 236.7) 15438 (341.0 / 217.0) 39716	(5.57 , 1.08) (N/A , 0.00 , 0.2)	44110.9 120.4	2.5726 137.5 151.6	0.3299 [0.4000]	82.5%			IR2,
7:3FTCA	(441.0 / 317.0) 33650 (441.0 / 337.0) 21899	(7.03 , 1.37) (N/A , 0.02 , -0.3)	193.2 140.4	0.6508 79.0 80.7	0.3948 [0.4000]	98.7%			
PFEESA	(315.0 / 135.0) 58629 (315.0 / 83.0) 15891	(5.44 , 1.06) (N/A , 0.00 , 0.2)	629.7 76.0	0.2710 113.3 117.8	0.1651 [0.1785]	92.5%			
PFMPA	(229.0 / 85.0) 9173	(3.78 , 0.88) (N/A , 0.01 , 0.0)	246.8	N/A 0.0 0.0	0.1855 [0.2000]	92.7%			
PFMBA	(279.0 / 85.0) 32274	(4.57 , 1.06) (N/A , 0.01 , 0.0)	384.8	N/A 0.0 0.0	0.2085 [0.2000]	104.3%			
NFDHA	(295.0 / 201.0) 26359 (295.0 / 85.0) 25766	(5.06 , 0.98) (N/A , 0.01 , -0.5)	10859.8 180.8	0.9775 100.1 107.5	0.1931 [0.2000]	96.6%			
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 [0.1000]	N/A%			BS2,
13C3_PFBA_IIS	(216.0 / 172.0) 120878	(3.44 , N/A) (N/A , 0.02 , N/A)	1698.0	N/A	1.0603 [1.0000]	106.0% { 113.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 119457	(5.14 , N/A) (N/A , 0.00 , N/A)	7080.9	N/A	0.8656 [1.0000]	86.6% { 97.8% }			
13C4_PFOA_IIS	(417.0 / 372.0) 313233	(6.43 , N/A) (N/A , 0.01 , N/A)	11105.2	N/A	1.0085 [1.0000]	100.8% { 116.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (9)
Acquired: 2023/04/07 - 18:00

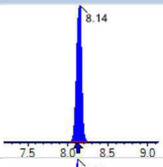
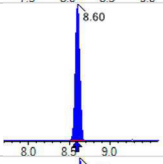
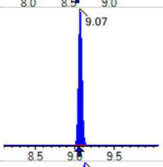
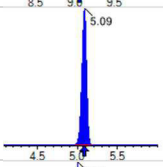
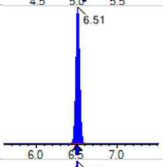
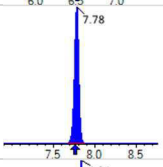
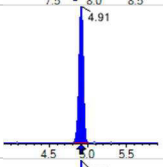
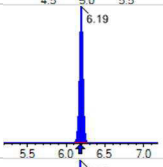
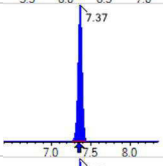
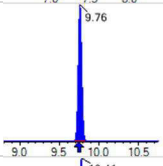
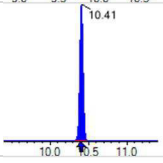
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C5_PFNA_IIS	(468.0 / 423.0) 293383	(7.04 , N/A) (N/A , 0.02 , N/A)	4825.8	N/A	0.9952 [1.0000]	99.5% { 101.7% }			
13C2_PFDA_IIS	(515.0 / 470.1) 314615	(7.61 , N/A) (N/A , 0.01 , N/A)	1744.6	N/A	1.0149 [1.0000]	101.5% { 104.4% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 420919	(6.52 , N/A) (N/A , 0.02 , N/A)	5080.2	N/A	0.9383 [1.0000]	93.8% { 97.9% }			
13C4_PFOS_IIS	(503.0 / 79.9) 741320	(7.78 , N/A) (N/A , 0.02 , N/A)	1754.2	N/A	1.0652 [1.0000]	106.5% { 115.1% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1114900	(3.44 , N/A) (N/A , 0.02 , N/A)	5480.9	N/A	8.6002 [8.0000]	107.5% { 113.4% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 943655	(4.29 , N/A) (N/A , 0.01 , N/A)	3242.4	N/A	5.0036 [4.0000]	125.1% { 113.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 562067	(5.14 , N/A) (N/A , 0.00 , N/A)	2409.4	N/A	2.4592 [2.0000]	123.0% { 118.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 576313	(5.79 , N/A) (N/A , 0.01 , N/A)	2309.1	N/A	2.5180 [2.0000]	125.9% { 114.3% }			
13C8_PFOA_EIS	(421.0 / 376.0) 681207	(6.43 , N/A) (N/A , 0.01 , N/A)	5713.6	N/A	2.1127 [2.0000]	105.6% { 111.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 296766	(7.04 , N/A) (N/A , 0.01 , N/A)	7117.6	N/A	1.0383 [1.0000]	103.8% { 100.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 369303	(7.61 , N/A) (N/A , 0.01 , N/A)	2324.8	N/A	1.0746 [1.0000]	107.5% { 104.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (9)
Acquired: 2023/04/07 - 18:00

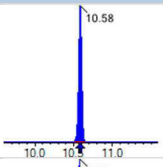
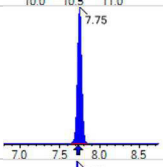
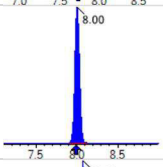
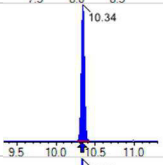
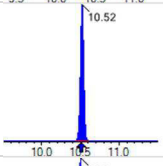
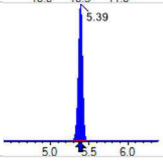
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C7_PFUnA_EIS	(570.0 / 525.0) 365407	(8.14 , N/A) (N/A , 0.02 , N/A)	3352.5	N/A	1.1029 [1.0000]	110.3% { 117.3% }			
13C2_PFDoA_EIS	(615.0 / 570.0) 283866	(8.60 , N/A) (N/A , 0.02 , N/A)	1650.7	N/A	0.9475 [1.0000]	94.7% { 101.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 307900	(9.07 , N/A) (N/A , 0.02 , N/A)	1418.1	N/A	1.0730 [1.0000]	107.3% { 116.1% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1231483	(5.09 , N/A) (N/A , 0.01 , N/A)	3086.1	N/A	2.2401 [2.0000]	112.0% { 104.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 889739	(6.51 , N/A) (N/A , 0.01 , N/A)	3274.1	N/A	2.2611 [2.0000]	113.1% { 114.2% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1841716	(7.78 , N/A) (N/A , 0.02 , N/A)	2620.7	N/A	2.0407 [2.0000]	102.0% { 117.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 275566	(4.91 , N/A) (N/A , 0.00 , N/A)	1212.2	N/A	5.4757 [4.0000]	136.9% { 136.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 320226	(6.19 , N/A) (N/A , 0.01 , N/A)	13091.1	N/A	4.7935 [4.0000]	119.8% { 127.9% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 364021	(7.37 , N/A) (N/A , 0.01 , N/A)	2593.6	N/A	4.4265 [4.0000]	110.7% { 112.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 2950898	(9.76 , N/A) (N/A , 0.01 , N/A)	4778.7	N/A	1.9325 [2.0000]	96.6% { 103.8% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 353658	(10.41 , N/A) (N/A , 0.01 , N/A)	1977.2	N/A	1.0212 [2.0000]	51.1% { 57.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCD0035-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-03-28.dam

Quant Method: 1633 - S2023-04-07A
Path: S2023-04-07B (9)
Acquired: 2023/04/07 - 18:00

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) 310987	(10.58 , N/A) (N/A , 0.01 , N/A)	2592.6	N/A	1.0967 [2.0000]	54.8% { 56.9% }			
D3_MeFOSAA_EIS	(573.0 / 419.0) 737278	(7.75 , N/A) (N/A , 0.02 , N/A)	2287.7	N/A	3.8933 [4.0000]	97.3% { 109.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 608459	(8.00 , N/A) (N/A , 0.02 , N/A)	667046.8	N/A	3.9125 [4.0000]	97.8% { 109.7% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 1493110	(10.34 , N/A) (N/A , 0.01 , N/A)	1432.2	N/A	13.4192 [20.0000]	67.1% { 72.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 2186486	(10.52 , N/A) (N/A , 0.01 , N/A)	1749.7	N/A	14.8506 [20.0000]	74.3% { 80.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1147540	(5.39 , N/A) (N/A , 0.00 , N/A)	2508.8	N/A	9.7844 [8.0000]	122.3% { 116.4% }			

PREPARATION BATCH SUMMARY

EPA 1633

Laboratory:	APPL, LLC			Work Order:	23C0205
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling / 60697810
Batch:	BCD0035	Batch Matrix:	Water	Preparation:	EPA 1633

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
AF-HDMW225303-WGN01LF-2303W3	23C0205-01RE2	04/04/23 12:20	579.72	2.00
AF-RHMW10-WGN01LF-2303W3	23C0205-02RE2	04/04/23 12:20	537.15	2.00
Blank	BCD0035-BLK1	04/04/23 12:20	500.00	2.00
LCS	BCD0035-BS1	04/04/23 12:20	500.00	2.00
MRL Check	BCD0035-MRL1	04/04/23 12:20	500.00	2.00

PREPARATION BENCH SHEET
Organics

Print Date/Time: 04/11/2023 11:02 am

BCD0035

Matrix: Water

Prepared using: PFAS - EPA 1633

Analyses
1633

Spiking Solution(s)
23C0548 PFAS - MIX 1633 10ng/mL

Surrogate Solution(s)
23C0562 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
23C0204-01RE2	AF-RHMW16-WGN01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	562.11	2		200	Re-extract added 4/3/2023 by HGH
23C0204-01RE3	AF-RHMW16-WGN01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	562.11	2		200	Re-extract added 4/3/2023 by HGH
23C0204-02RE2	AF-RHMW12A-WGN01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	546.07	2		200	Re-extract added 4/3/2023 by HGH
23C0204-02RE3	AF-RHMW12A-WGN01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	546.07	2		200	Re-extract added 4/3/2023 by HGH
23C0204-03RE2	AF-RHMW12A-WGFD01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	500.72	2		200	Re-extract added 4/3/2023 by HGH
23C0204-03RE3	AF-RHMW12A-WGFD01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	500.72	2		200	Re-extract added 4/3/2023 by HGH
23C0204-04RE2	AF-RHMW06-WGN01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	578.08	2		200	Re-extract added 4/3/2023 by HGH
23C0204-04RE3	AF-RHMW06-WGN01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	578.08	2		200	Re-extract added 4/3/2023 by HGH
23C0204-05RE2	AF-RHMW04-WGN01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	575.77	2		200	Re-extract added 4/3/2023 by HGH
23C0204-05RE3	AF-RHMW04-WGN01LF-2303W3	03/31/2023	04/17/2023	4/4/2023 12:20:00PM	575.77	2		200	Re-extract added 4/3/2023 by HGH
23C0205-01RE2	AF-HDMW225303-WGN01LF-2303W3	03/31/2023	04/18/2023	4/4/2023 12:20:00PM	579.72	2		200	Re-extract added 4/3/2023 by HGH
23C0205-01RE3	AF-HDMW225303-WGN01LF-2303W3	03/31/2023	04/18/2023	4/4/2023 12:20:00PM	579.72	2		200	Re-extract added 4/3/2023 by HGH
23C0205-02RE2	AF-RHMW10-WGN01LF-2303W3	03/31/2023	04/18/2023	4/4/2023 12:20:00PM	537.15	2		200	Re-extract added 4/3/2023 by HGH
23C0205-02RE3	AF-RHMW10-WGN01LF-2303W3	03/31/2023	04/18/2023	4/4/2023 12:20:00PM	537.15	2		200	Re-extract added 4/3/2023 by HGH
23C0207-01RE2	AF-RHMW225401-WGN01B-2303W3	03/31/2023	04/19/2023	4/4/2023 12:20:00PM	568.31	2		200	Re-extract added 4/3/2023 by HGH
23C0207-01RE3	AF-RHMW225401-WGN01B-2303W3	03/31/2023	04/19/2023	4/4/2023 12:20:00PM	568.31	2		200	Re-extract added 4/3/2023 by HGH
23C0212-03RE1	RS001P-VAS-003-21	04/06/2023	04/19/2023	4/4/2023 12:20:00PM	498.24	2		200	2.5g soil
23C0212-03RE2	RS001P-VAS-003-21	04/06/2023	04/19/2023	4/4/2023 12:20:00PM	498.24	2		200	2.5g soil

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

Table of Contents

PREPARATION BENCH SHEET
Organics

Print Date/Time: 04/11/2023 11:02 am

BCD0035

(Continued)

Matrix: Water

Prepared using: PFAS - EPA 1633

Analyses	Spiking Solution(s)	Surrogate Solution(s)
1633	23C0548 PFAS - MIX 1633 10ng/mL	23C0562 MPFAC-HIF-ES 20.0ng/mL

23C0212-03RE4	RS001P-VAS-003-21	04/06/2023	04/19/2023	4/4/2023 12:20:00PM	498.24	2		20000	2.5g soil
23C0212-03RE5	RS001P-VAS-003-21	04/06/2023	04/19/2023	4/4/2023 12:20:00PM	498.24	2		200000	2.5g soil
23C0222-01RE2	AF-RHMW03-WGN01LF-2303W3	03/31/2023	04/20/2023	4/4/2023 12:20:00PM	586.02	2		200	Re-extract added 4/3/2023 by HGH
23C0222-01RE3	AF-RHMW03-WGN01LF-2303W3	03/31/2023	04/20/2023	4/4/2023 12:20:00PM	586.02	2		200	Re-extract added 4/3/2023 by HGH
23C0229-04RE1	RS001P-EB-SOIL-03	04/10/2023	04/20/2023	4/4/2023 12:20:00PM	538.84	2		200	From BCD0012 by PAF on 04/04/23
23C0229-04RE2	RS001P-EB-SOIL-03	04/10/2023	04/20/2023	4/4/2023 12:20:00PM	538.84	2		200	Added 4/6/2023 by ABK
23D0008-01	AF-RHMW04-WGN01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	535.21	2		200	"Report relevant surrogates"
23D0008-01RE1	AF-RHMW04-WGN01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	535.21	2		200	"Report relevant surrogates"
23D0008-02	AF-RHMW06-WGN01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	525.17	2		200	"Report relevant surrogates"
23D0008-02RE1	AF-RHMW06-WGN01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	525.17	2		200	"Report relevant surrogates"
23D0008-03	AF-RHMW16-WGN01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	550.13	2		200	"Report relevant surrogates"
23D0008-03RE1	AF-RHMW16-WGN01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	550.13	2		200	"Report relevant surrogates"
23D0008-04	AF-RHMW12A-WGN01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	535.16	2		200	"Report relevant surrogates"
23D0008-04RE1	AF-RHMW12A-WGN01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	535.16	2		200	"Report relevant surrogates"
23D0008-05	AF-RHMW12A-WGFD01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	558.35	2		200	"Report relevant surrogates"
23D0008-05RE1	AF-RHMW12A-WGFD01LF-2304W1	04/11/2023	05/01/2023	4/4/2023 12:20:00PM	558.35	2		200	"Report relevant surrogates"
BCD0035-BLK1	Blank			4/4/2023 12:20:00PM	500	2	0	200	
BCD0035-BS1	LCS			4/4/2023 12:20:00PM	500	2	200	200	
BCD0035-MRL1	MRL Check			4/4/2023 12:20:00PM	500	2	20	200	

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

PREPARATION BENCH SHEET
Organics

Print Date/Time: 04/11/2023 11:02 am

BCD0035

(Continued)

Matrix: Water

Prepared using: PFAS - EPA 1633

Analyses
1633

Spiking Solution(s)

23C0548	PFAS - MIX 1633 10ng/mL

Surrogate Solution(s)

23C0562	MPFAC-HIF-ES 20.0ng/mL

Start Date/Time _____

StopDate/Time _____

Reagents

Standard	Description	LotNum
22C0296	Envi-carb	122395
23C0006	Reagent - 0.05MFA wash	x
23C0130	Reagent - 1.0% Ammonia Hydroxide	219481
23C0468	Reagent -0.3M Formic Acid	M13H051
23C0469	Am. Ac. preservative	*

Batch Comments:
Spiked by: PHF 04/04/23 12:20
Witness:DAG
Balance #:
Cartridge:Agilent
Concentration: 4/5/23 3:15-4:42

Spiking Witnessed By _____ Date _____

Preparation Reviewed By _____ Date _____

Extracts Received By _____ Date _____

Table of Contents

INTENTIONALLY LEFT BLANK

INTENTIONALLY LEFT BLANK

INTENTIONALLY LEFT BLANK

INJECTION LOG - ANALYSIS SEQUENCE SUMMARY

EPA 1633

Laboratory:	APPL, LLC	SDG:	
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Sequence:	SC01366	Instrument:	Saphira
Calibration:	2315001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	SC01366-CAL1	S2023-04-07A (1)	04/07/23 12:38
Cal Standard	SC01366-CAL2	S2023-04-07A (2)	04/07/23 12:51
Cal Standard	SC01366-CAL3	S2023-04-07A (3)	04/07/23 13:04
Cal Standard	SC01366-CAL4	S2023-04-07A (4)	04/07/23 13:16
Cal Standard	SC01366-CAL5	S2023-04-07A (5)	04/07/23 13:29
Cal Standard	SC01366-CAL6	S2023-04-07A (6)	04/07/23 13:42
Cal Standard	SC01366-CAL7	S2023-04-07A (7)	04/07/23 13:55
Cal Standard	SC01366-CAL8	S2023-04-07A (8)	04/07/23 14:08
Initial Cal Blank	SC01366-ICB1	S2023-04-07A (9)	04/07/23 15:38
Secondary Cal Check	SC01366-SCV1	S2023-04-07A (10)	04/07/23 15:51

INJECTION LOG - ANALYSIS SEQUENCE SUMMARY

EPA 1633

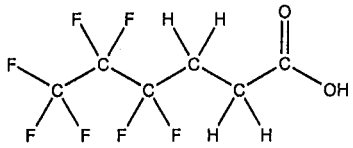
Laboratory:	APPL, LLC	SDG:	
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling / 60697810
Sequence:	SC01368	Instrument:	Saphira
Calibration:	2315001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Blank	SC01368-CCB1	S2023-04-07B (1)	04/07/23 16:17
Low Cal Check	SC01368-LCV1	S2023-04-07B (2)	04/07/23 16:30
Calibration Check	SC01368-CCV1	S2023-04-07B (3)	04/07/23 16:43
Performance Mix	SC01368-PEM1	S2023-04-07B (4)	04/07/23 16:56
Performance Mix	SC01368-PEM2	S2023-04-07B (5)	04/07/23 17:09
Calibration Blank	SC01368-CCB2	S2023-04-07B (6)	04/07/23 17:21
Blank	BCD0035-BLK1	S2023-04-07B (7)	04/07/23 17:34
LCS	BCD0035-BS1	S2023-04-07B (8)	04/07/23 17:47
MRL Check	BCD0035-MRL1	S2023-04-07B (9)	04/07/23 18:00
AF-HDMW225303-WGN01LF-2303W3	23C0205-01RE2	S2023-04-07B (20)	04/07/23 20:22
AF-RHMW10-WGN01LF-2303W3	23C0205-02RE2	S2023-04-07B (22)	04/07/23 20:48
Calibration Check	SC01368-CCV2	S2023-04-07B (26)	04/07/23 21:39
Calibration Blank	SC01368-CCB3	S2023-04-07B (27)	04/07/23 21:52
Calibration Check	SC01368-CCV3	S2023-04-07B (45)	04/08/23 01:44
Calibration Blank	SC01368-CCB4	S2023-04-07B (46)	04/08/23 01:57

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:

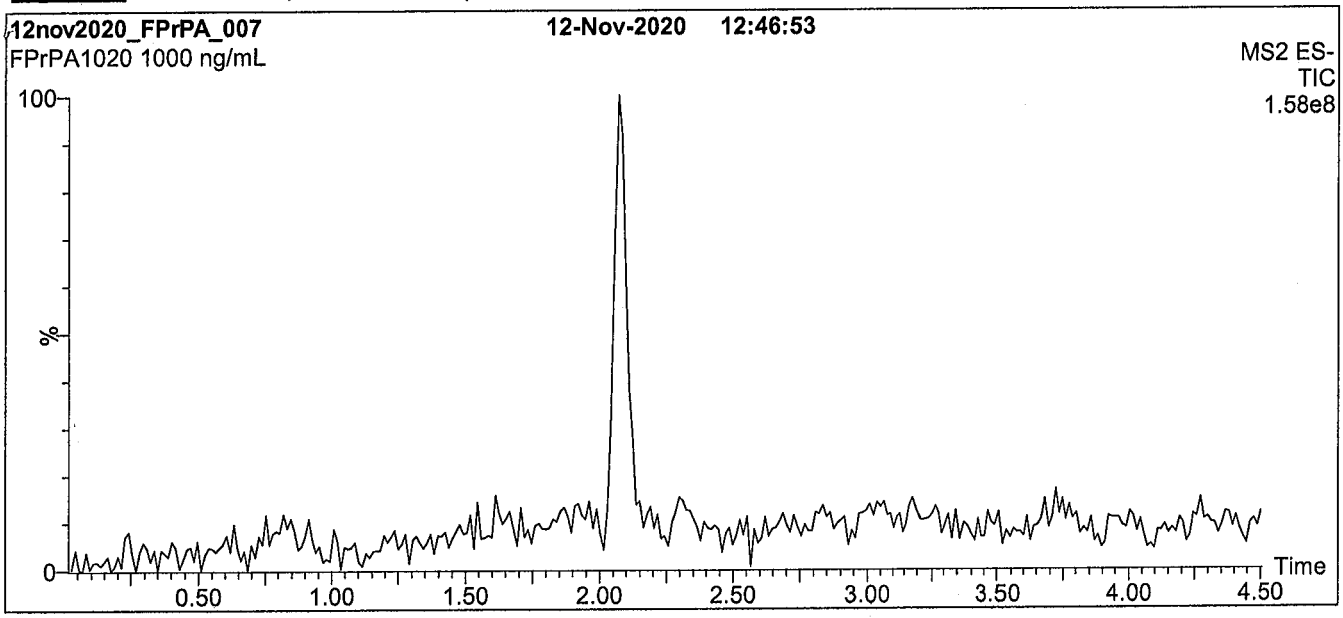
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

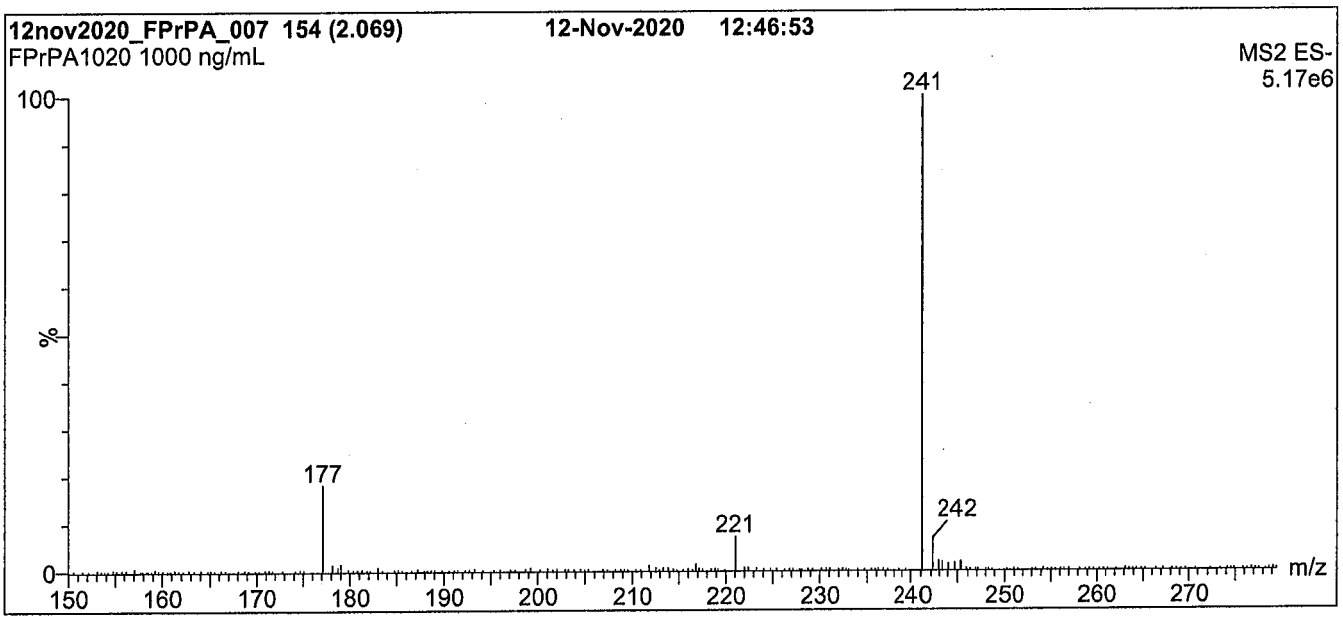
CALA Testing Accreditation No. A1226

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

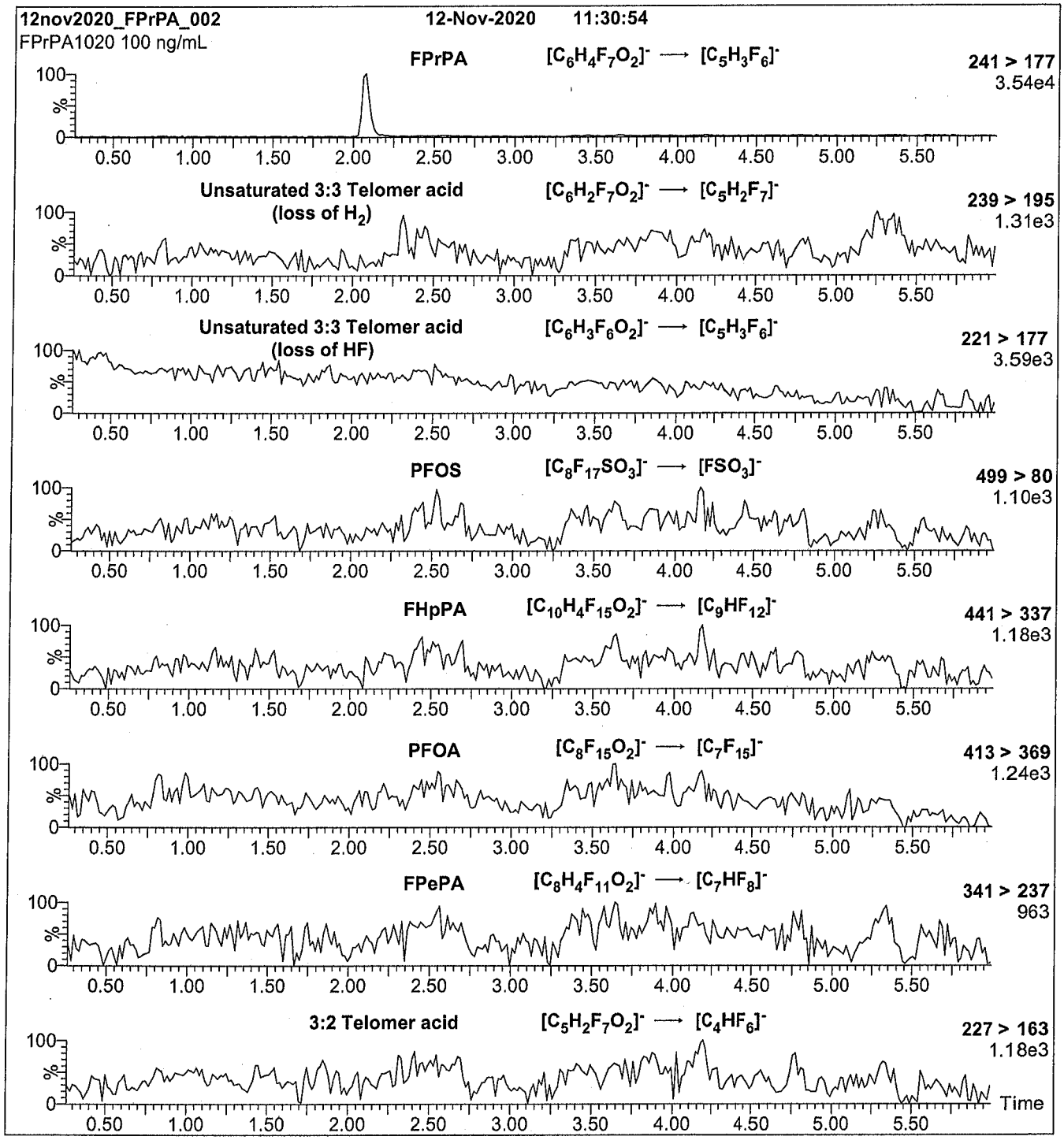
Flow: 300 µL/min

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

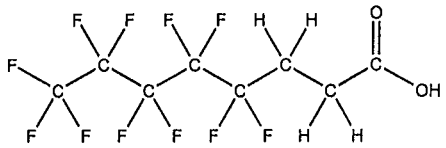
CERTIFICATE OF ANALYSIS DOCUMENTATION

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:

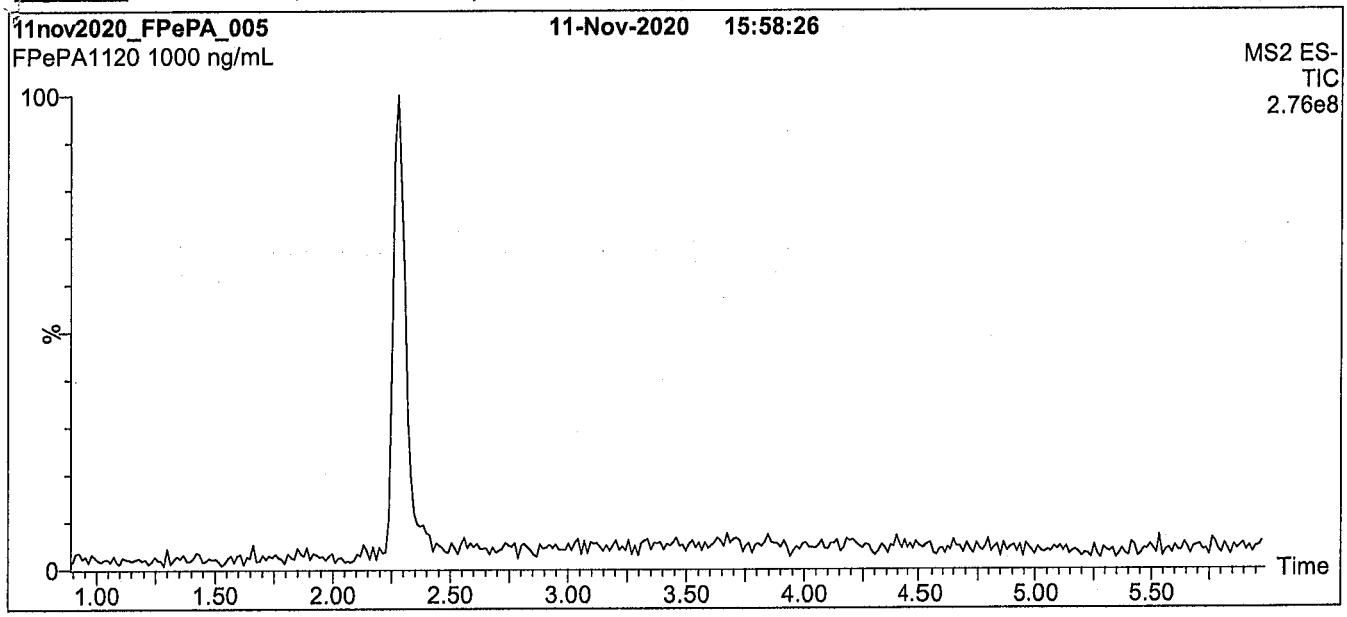
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

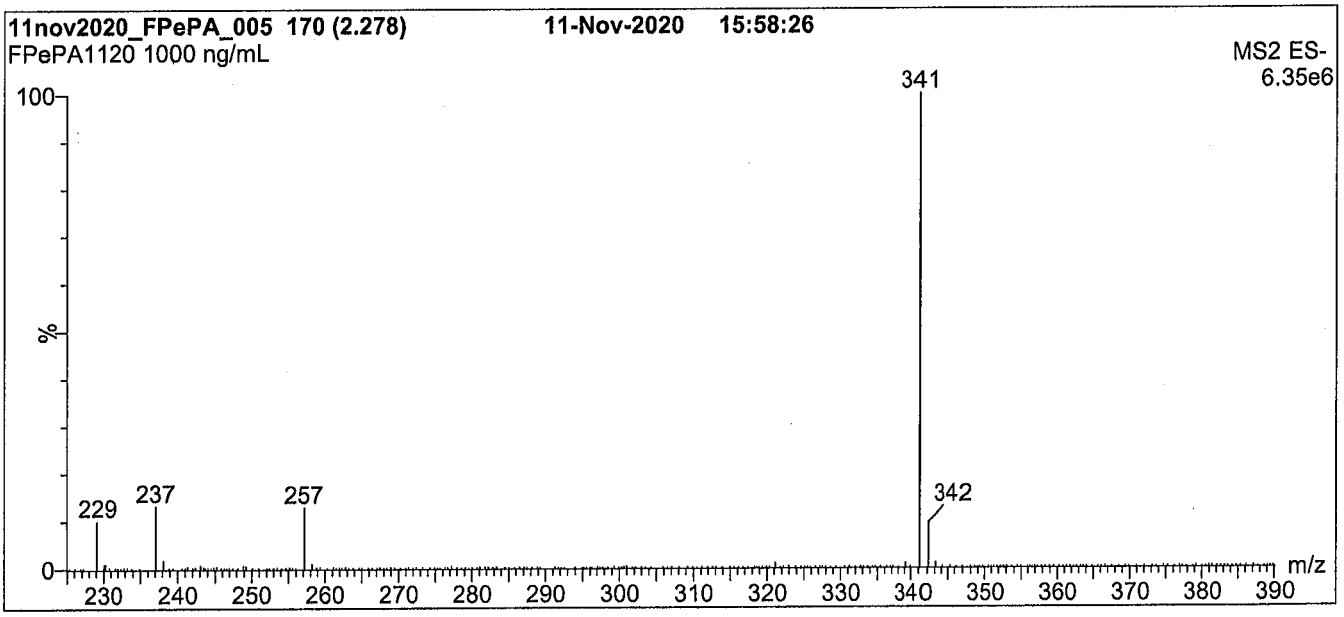
CALA Testing Accreditation No. A1226

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

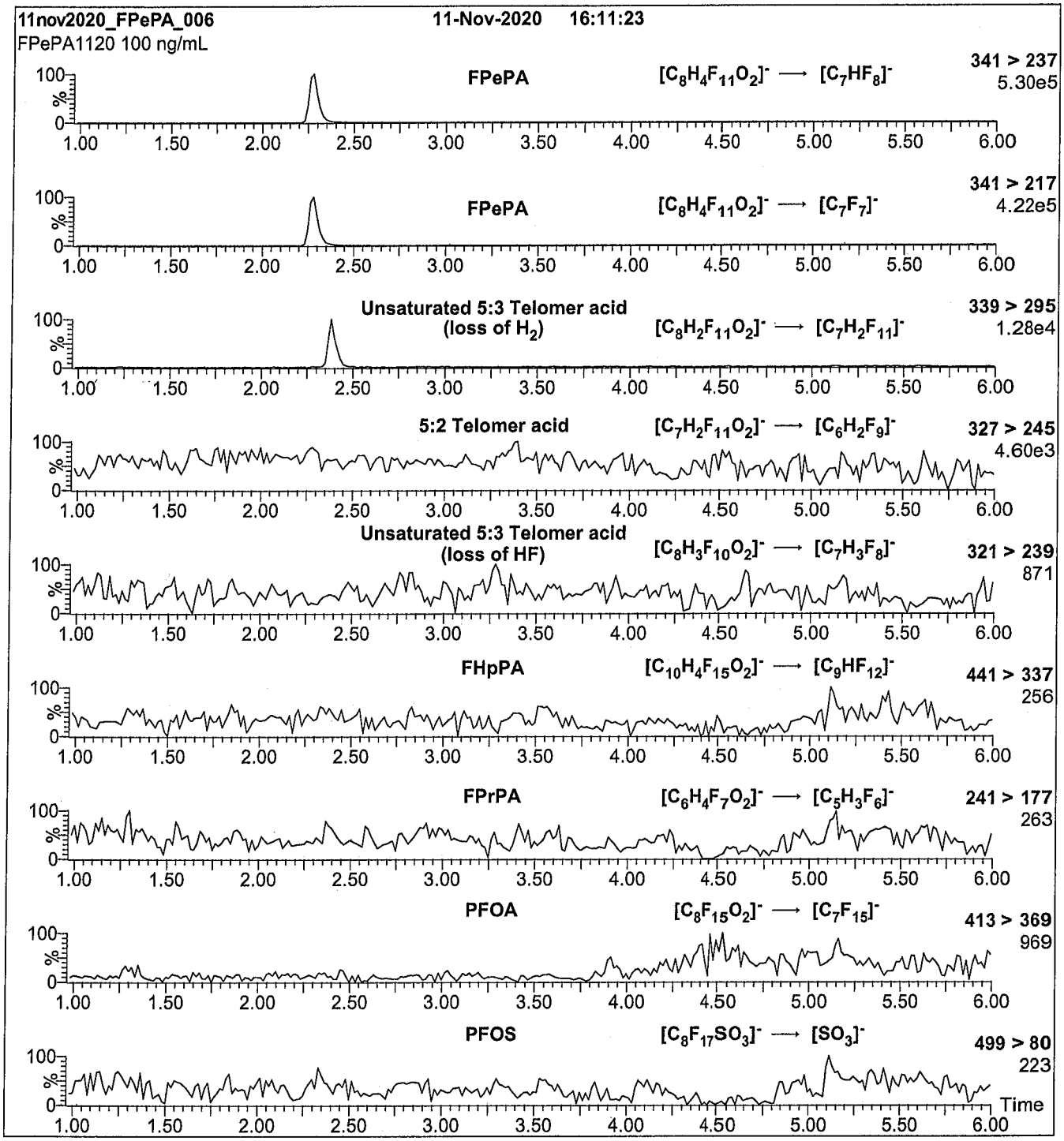
Flow: 300 µL/min

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

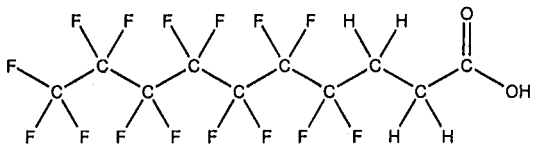
Description:	PFAS - SAS 5:3FTA 50ug/mL	Expires:	06/05/2022
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Hart Hedgpeth
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 16:03 by HGH
Comments:	5:3 FTCA 50.0ug/mL		

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:

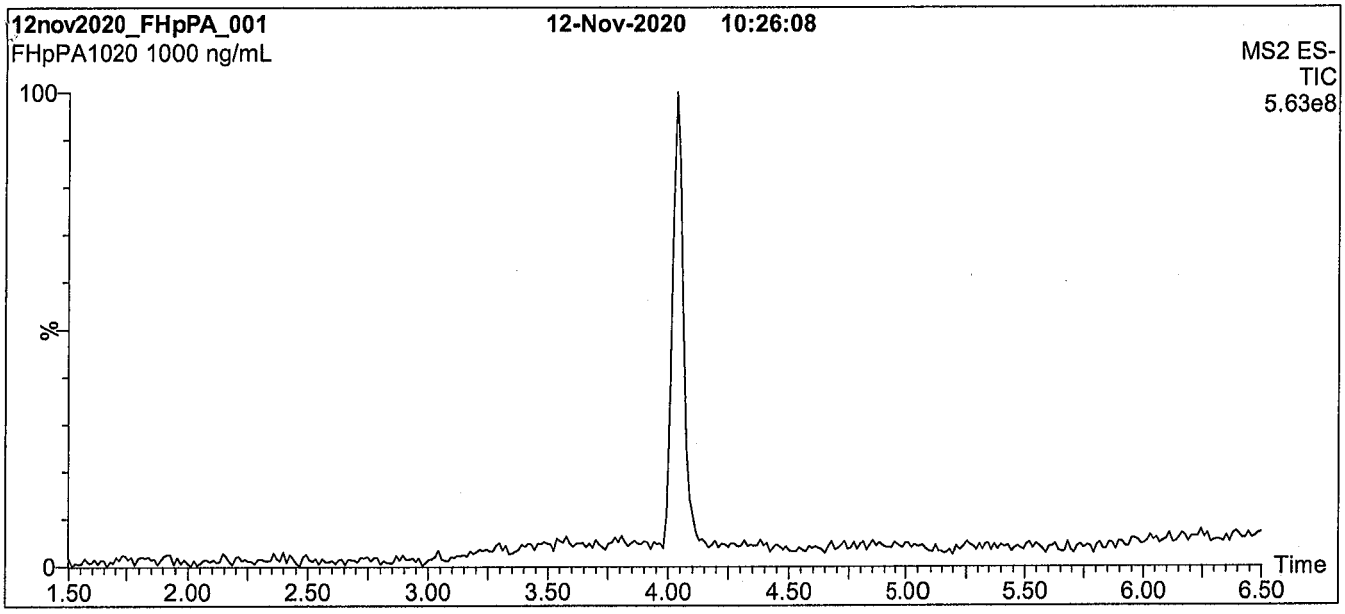
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

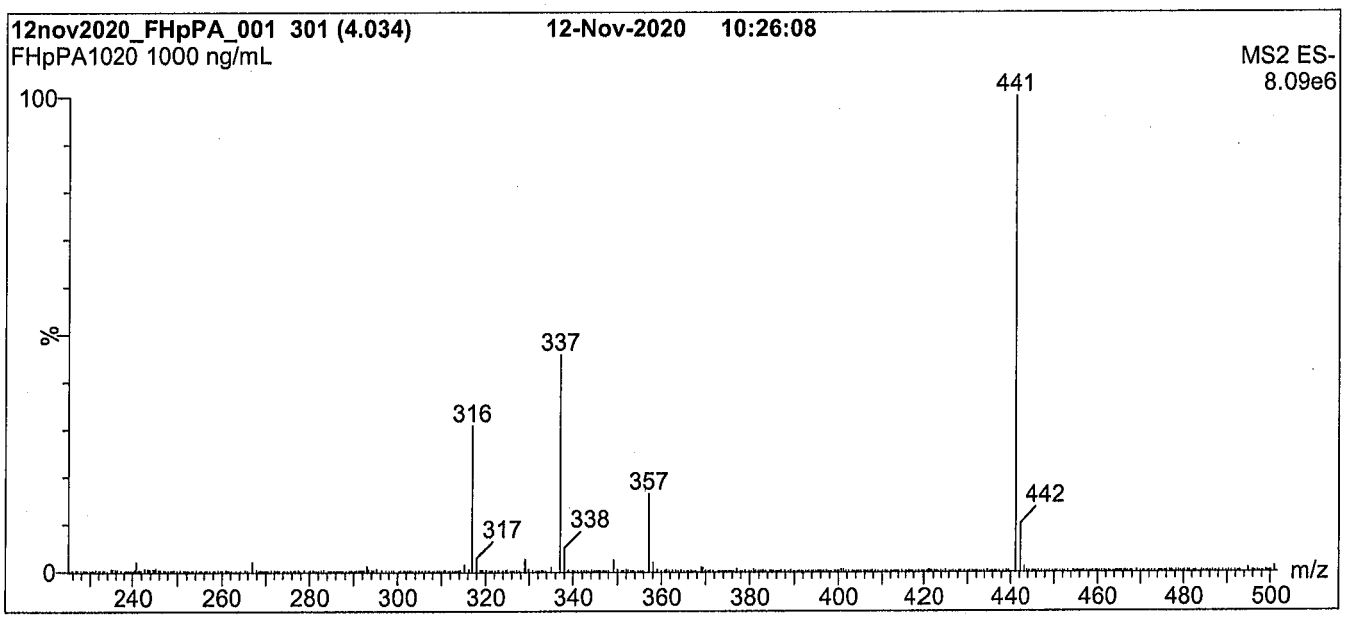
CALA Testing Accreditation No. A1226

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

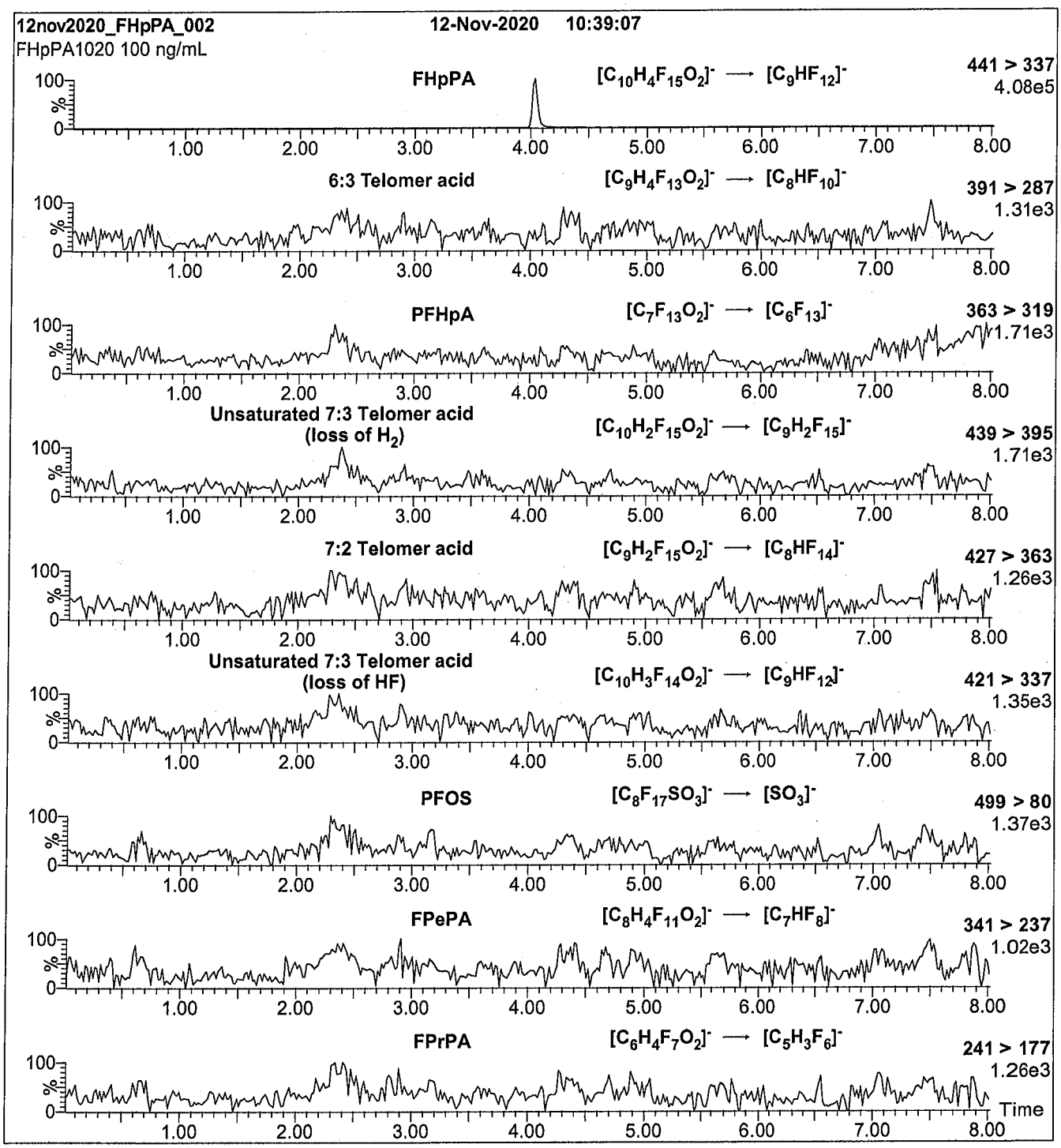
Flow: 300 µL/min

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

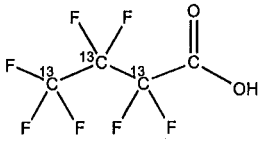
Description:	PFAS - SAS 7:3FTA 50ug/mL	Expires:	06/05/2022
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Hart Hedgpeth
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 16:16 by HGH
Comments:	7:3 FTCA 50.0ug/mL		

Analyte	Parent	CAS Number	Concentration	Units
7:3 FTA		812-70-4	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M3PFBA	**LOT NUMBER:**	M3PFBA0721
COMPOUND:	Perfluoro-n-(2,3,4-$^{13}C_3$)butanoic acid		
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:

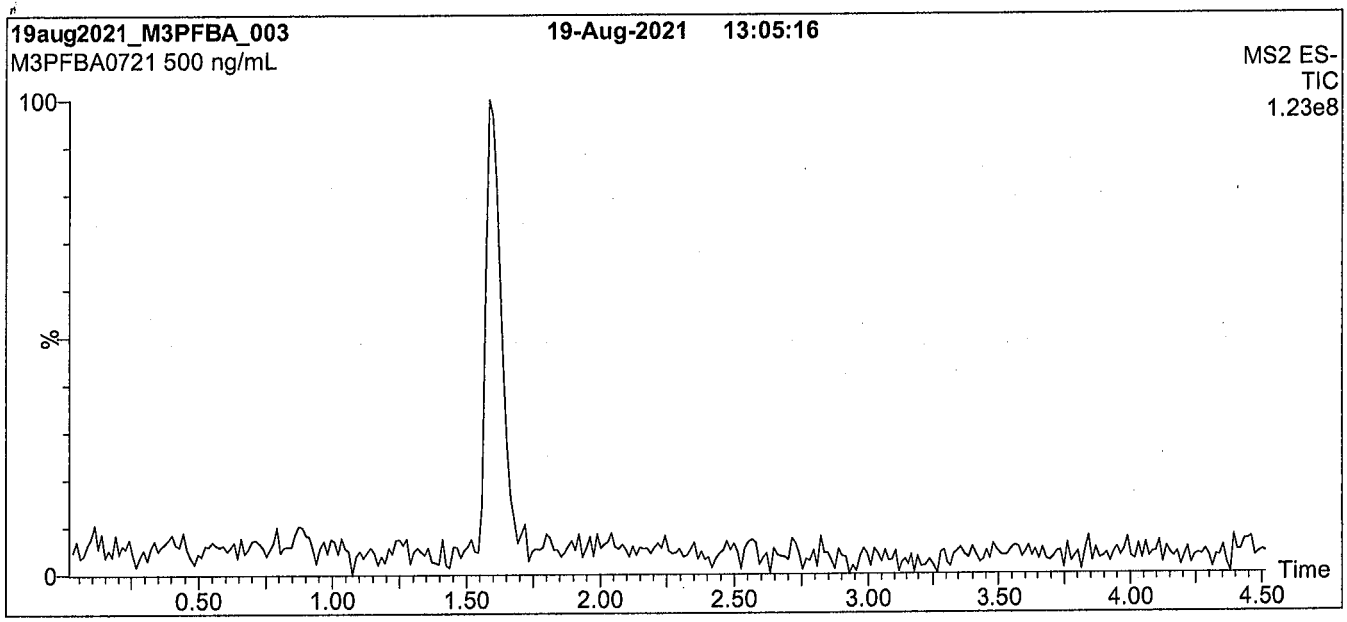
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

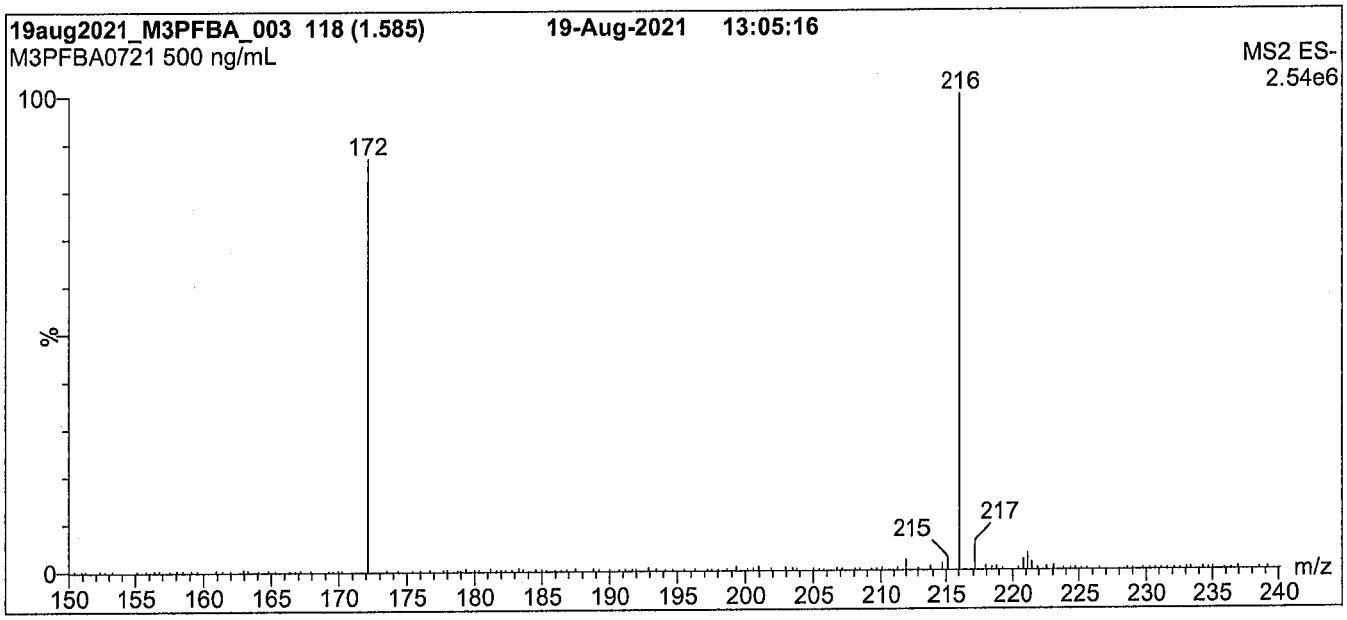
CALA Testing Accreditation No. A1226

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

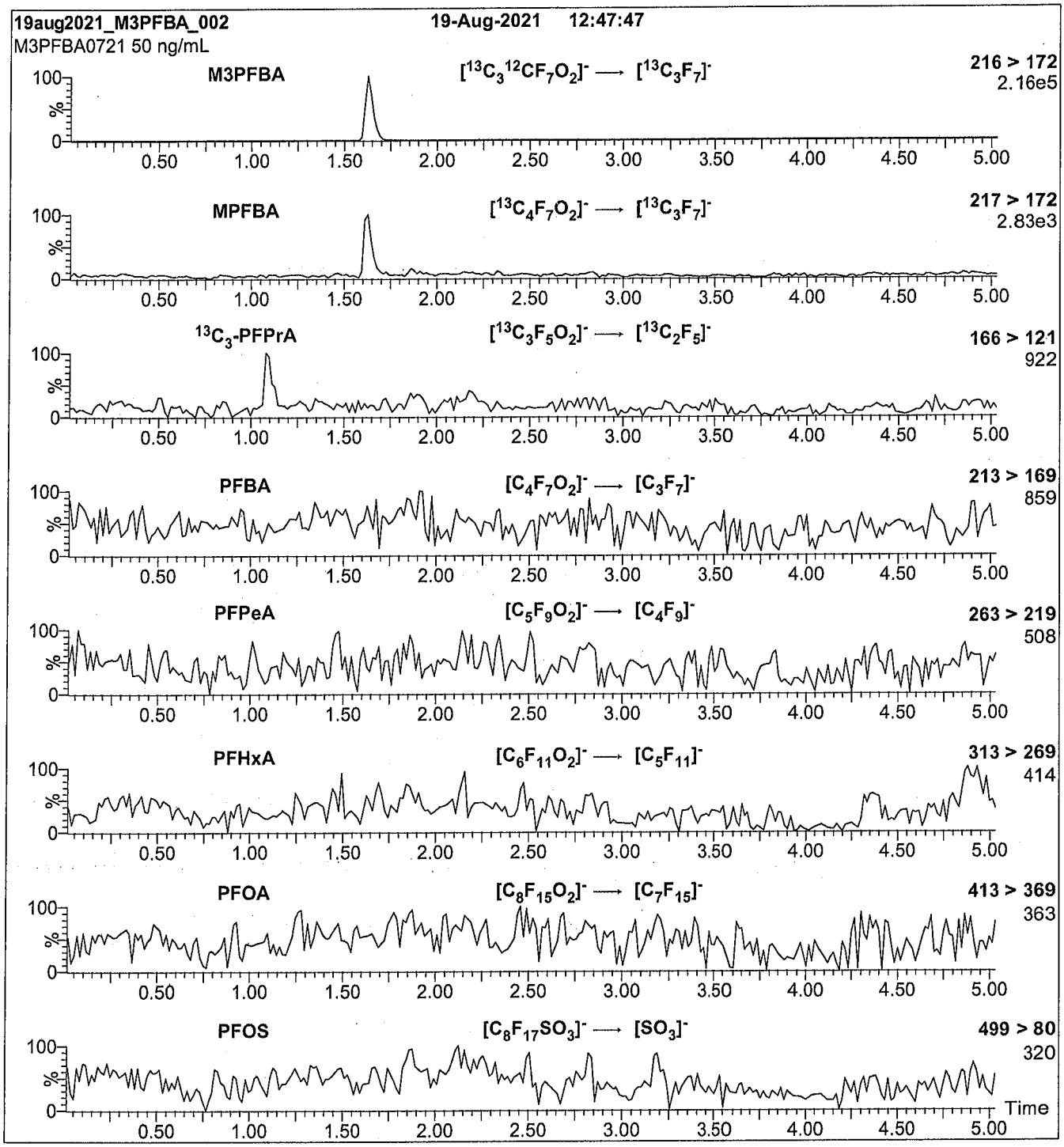
Flow: 300 µL/min

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

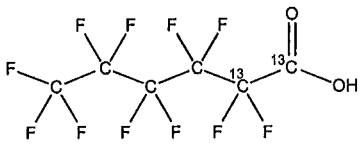
Description:	PFAS - IIS M3PFBA 50ug/mL	Expires:	08/19/2026
Standard Type:	Analyte Spike	Prepared:	08/19/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C3-PFBA		13C3-PFBA	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFHxA	**LOT NUMBER:**	MPFHxA0921
COMPOUND:	Perfluoro-n-(1,2-$^{13}C_2$)hexanoic acid		
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:

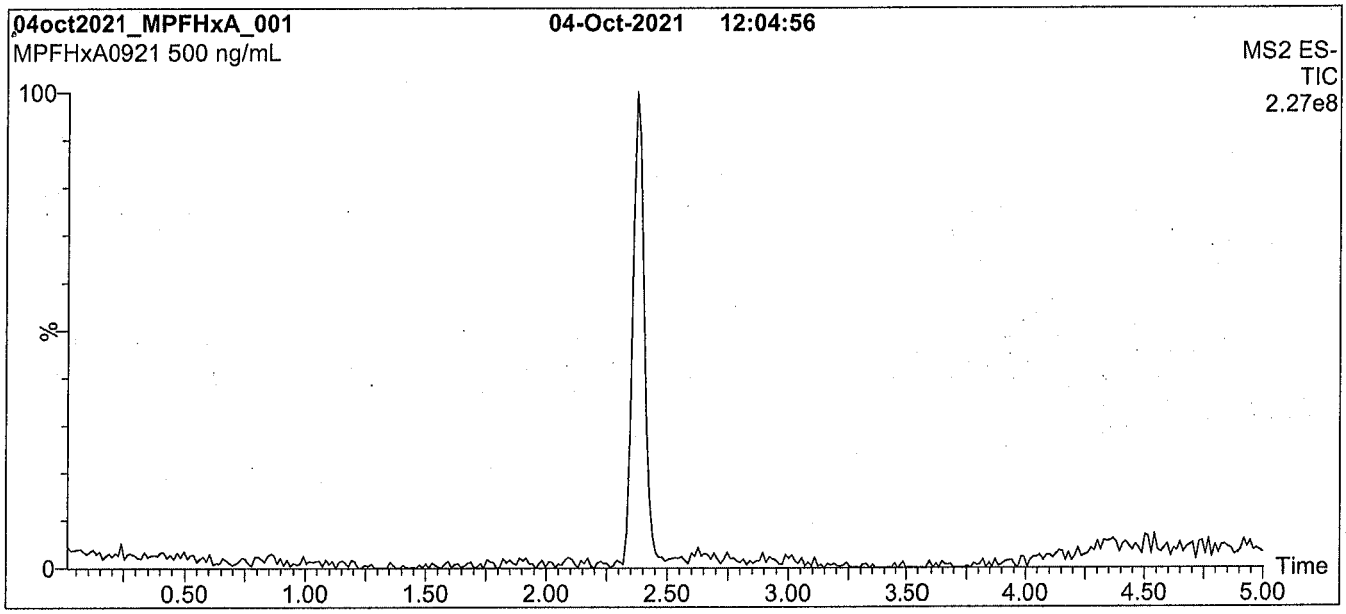
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

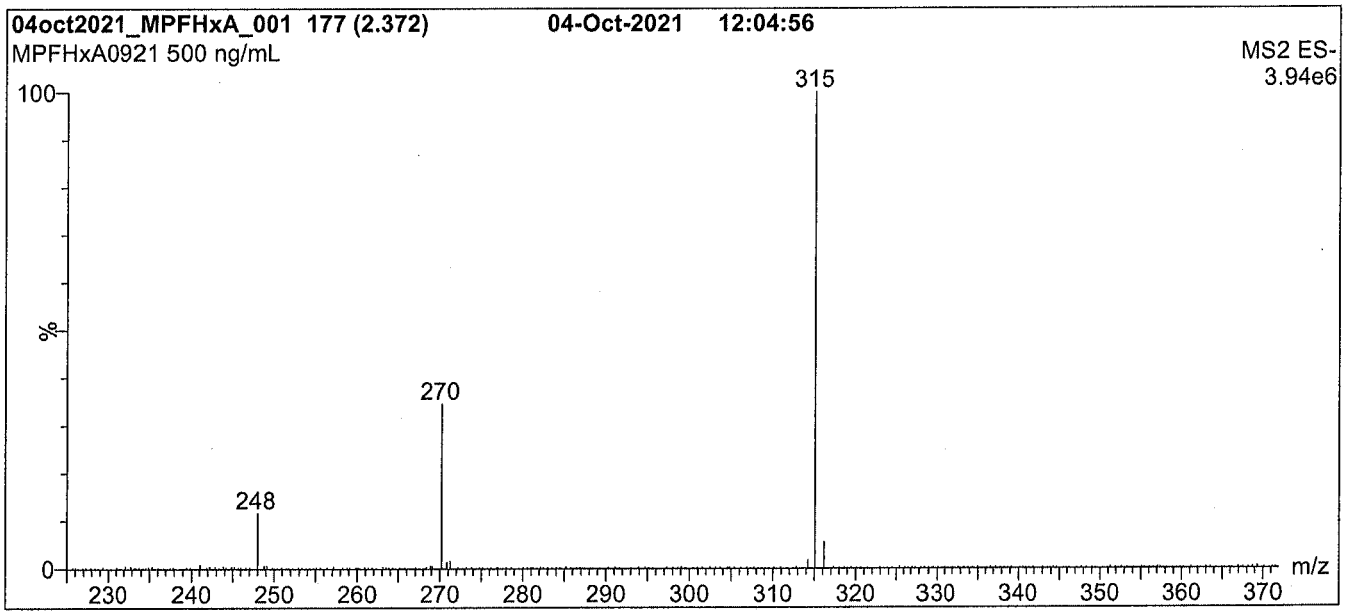
CALA Testing Accreditation No. A1226

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

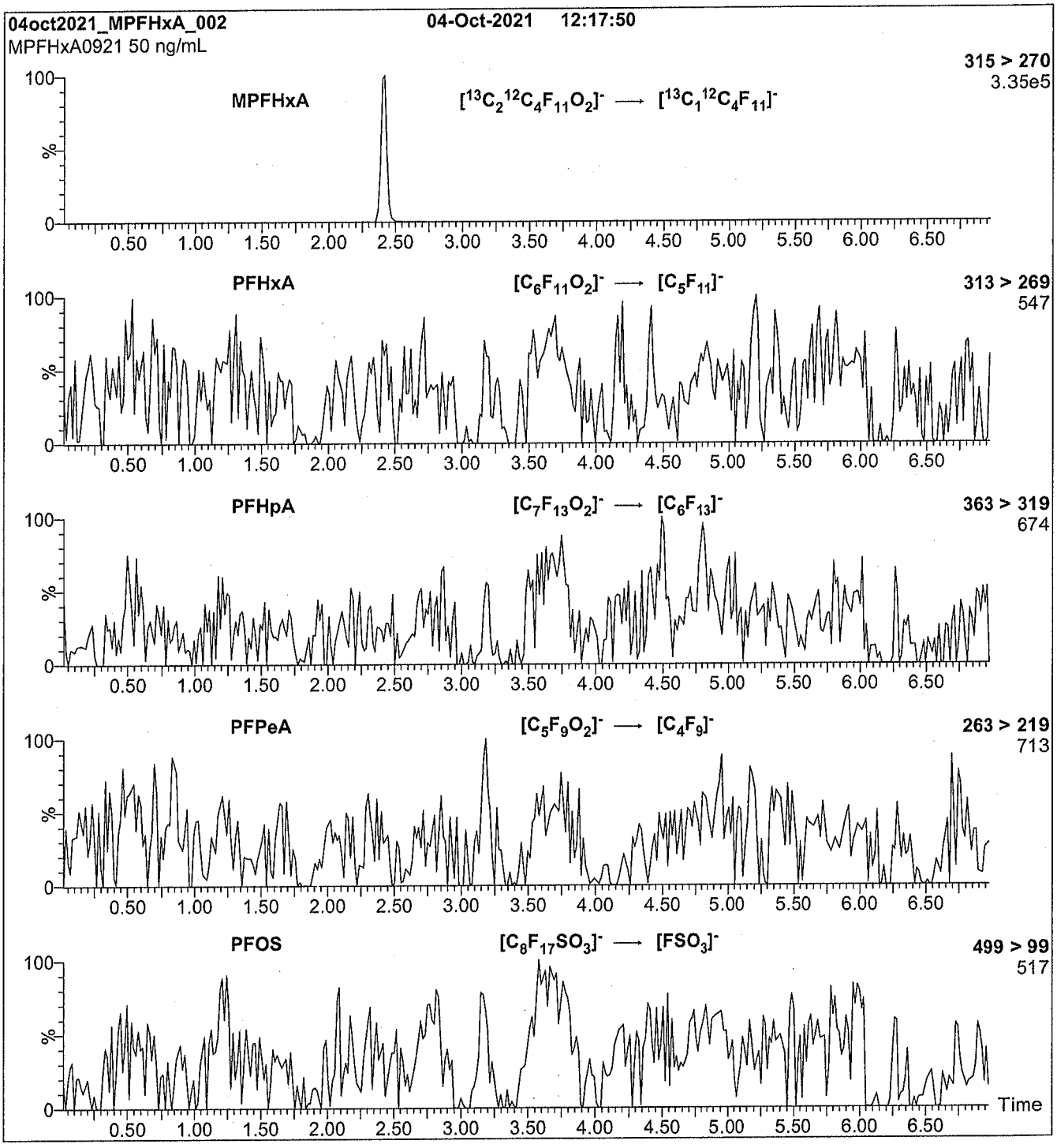
Flow: 300 µL/min

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

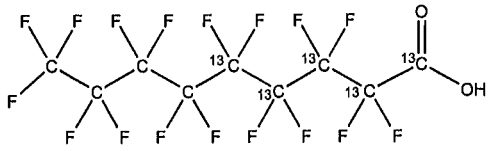
Description:	PFAS - IIS MPFHxA 50ug/mL	Expires:	10/04/2026
Standard Type:	Analyte Spike	Prepared:	10/04/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

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 ($1,2,3,4,5\text{-}^{13}C_5$)
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:

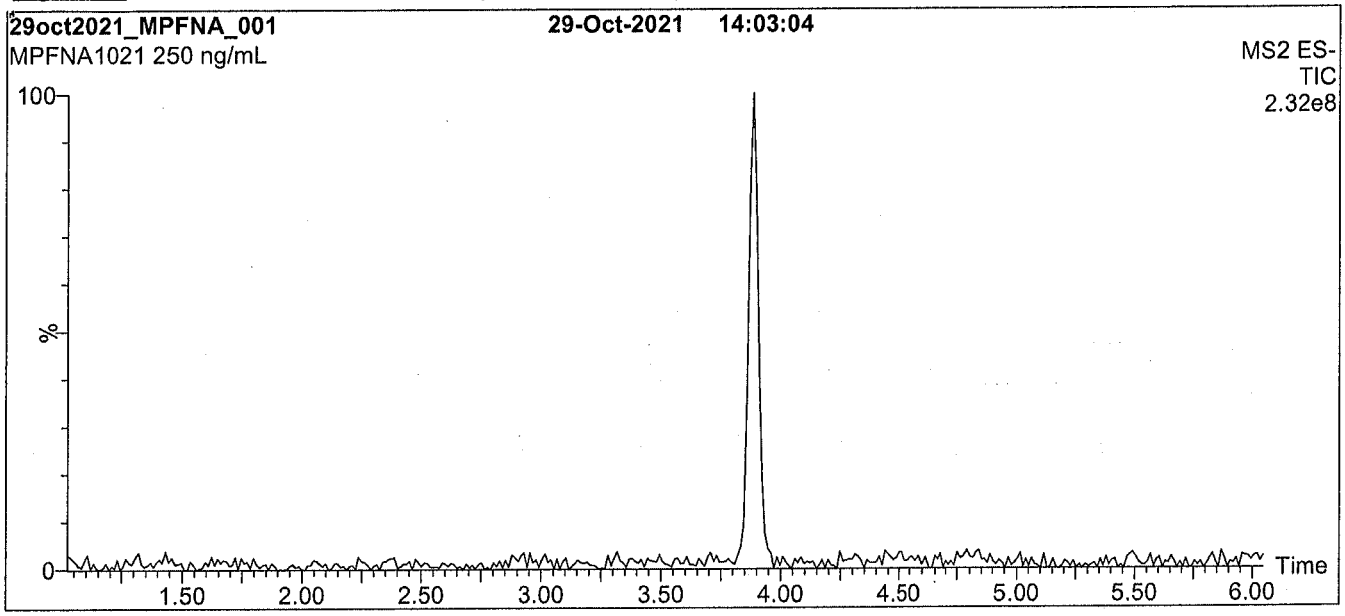
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

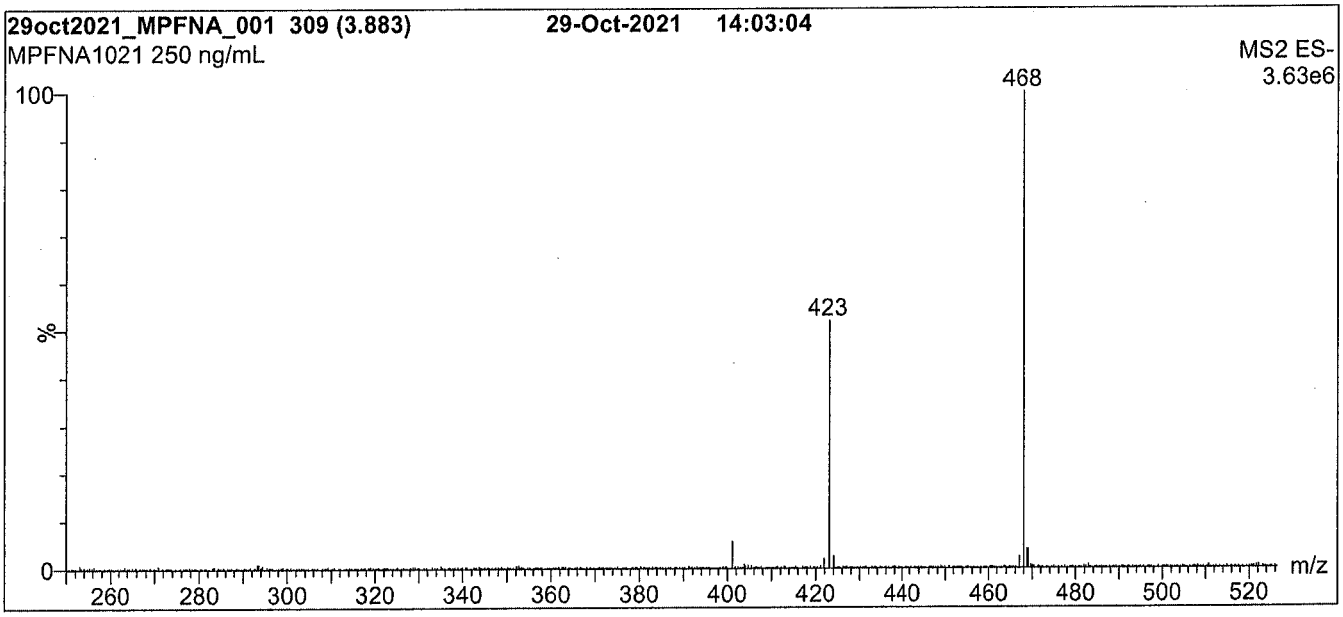
CALA Testing Accreditation No. A1226

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

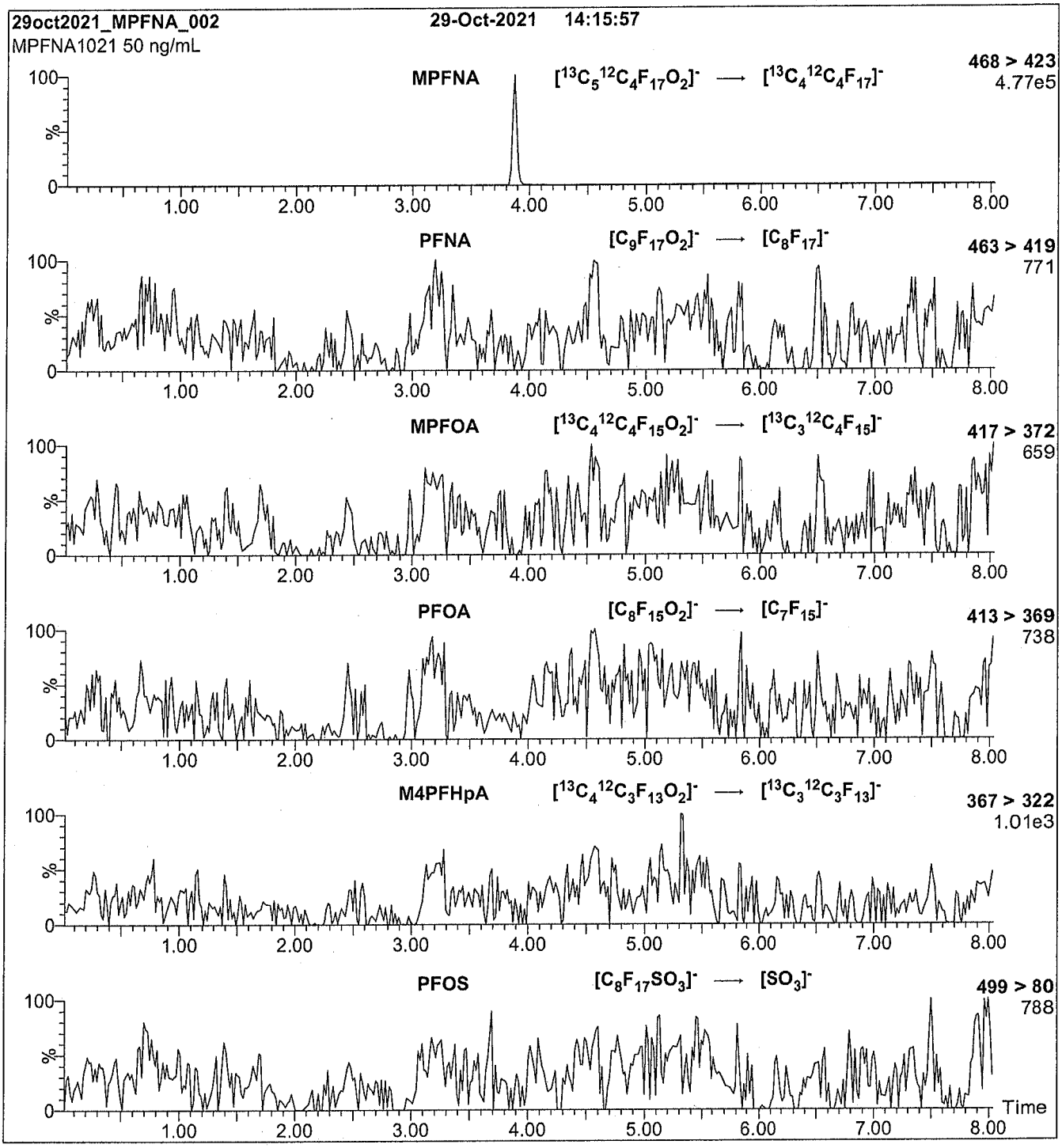
Flow: 300 µL/min

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

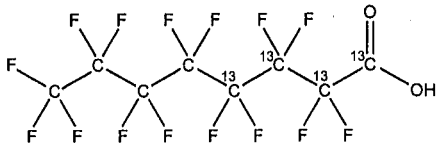
Description:	PFAS - IIS MPFNA 50ug/mL	Expires:	10/29/2026
Standard Type:	Analyte Spike	Prepared:	10/29/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

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:

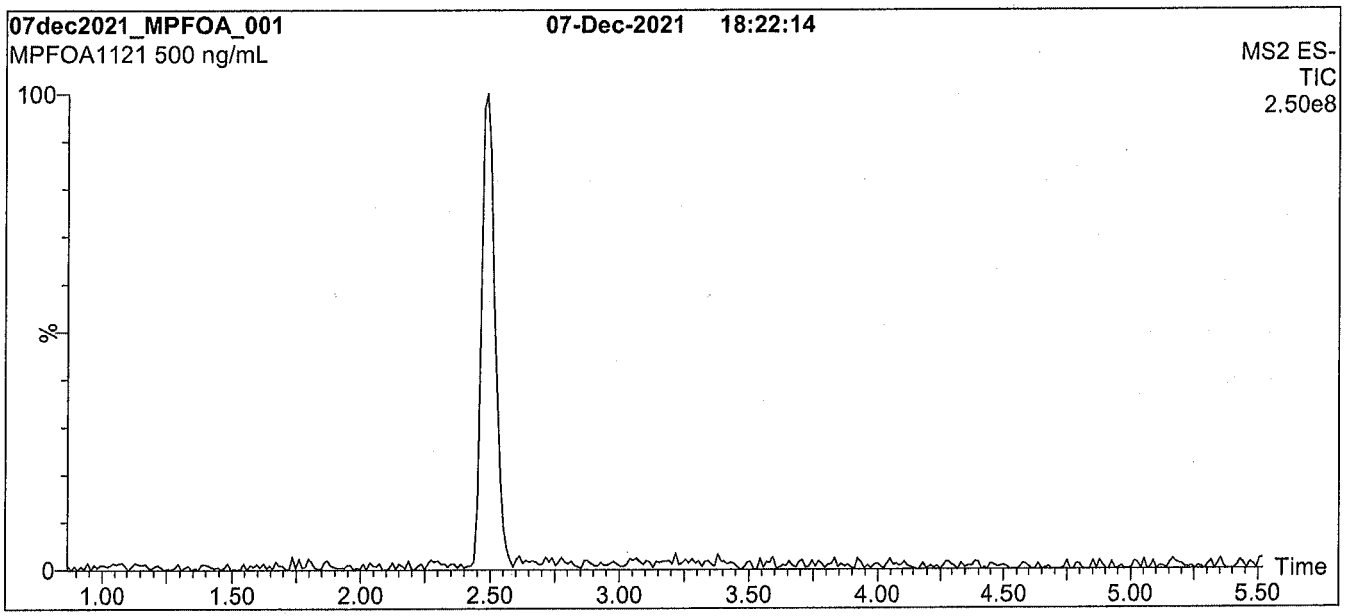
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

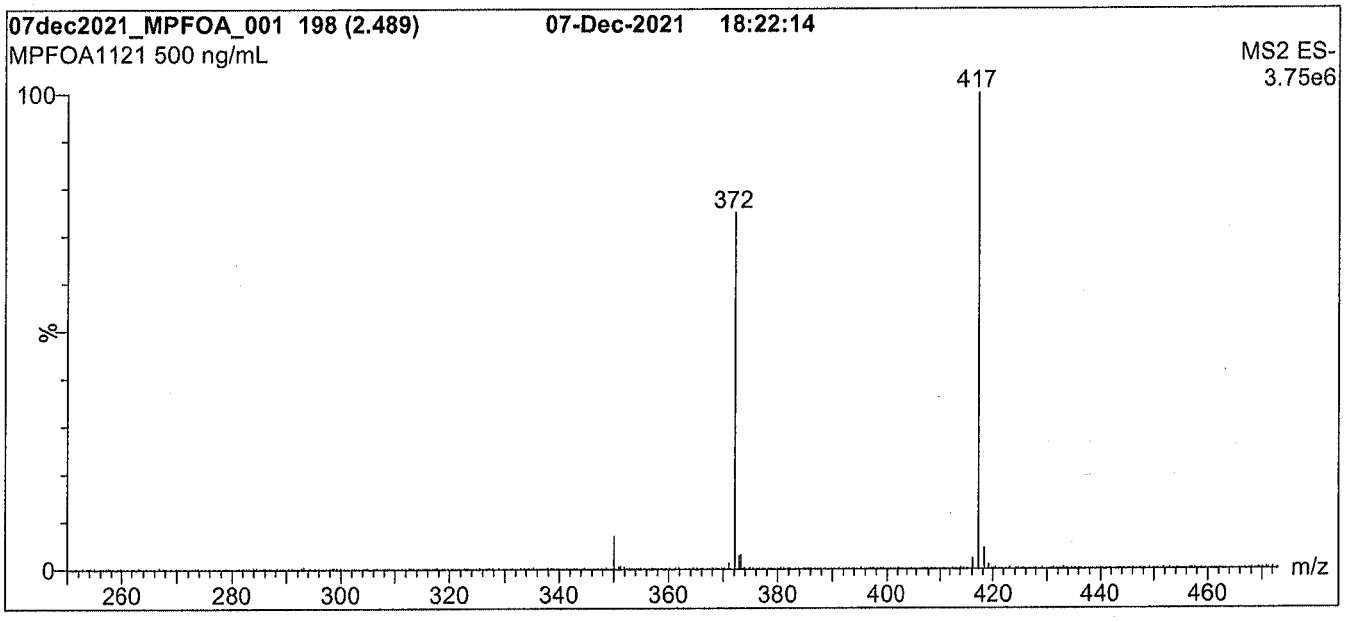
CALA Testing Accreditation No. A1226

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

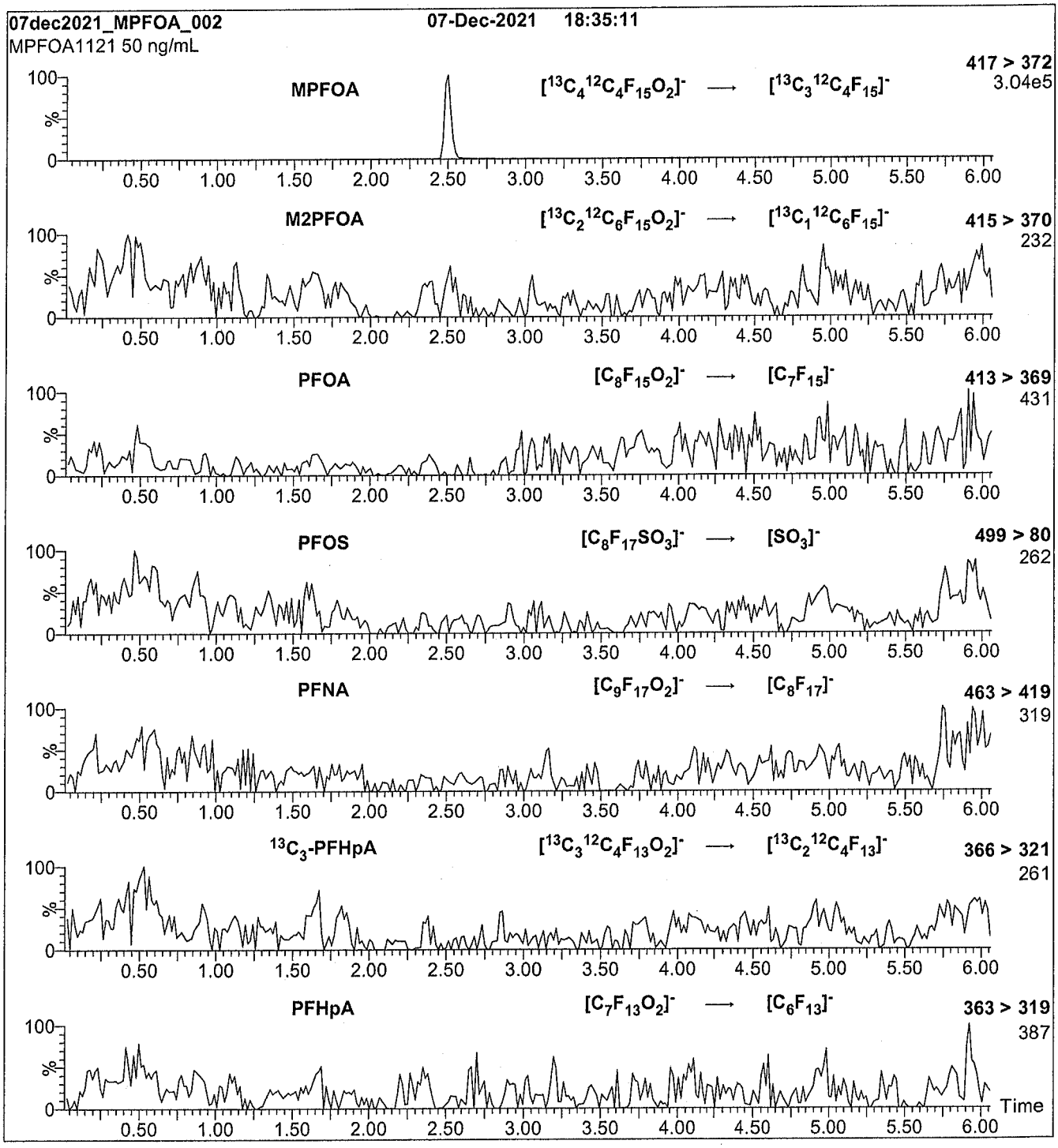
Flow: 300 µL/min

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

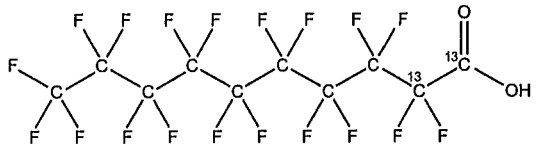
Description:	PFAS - IIS MPFOA 50ug/mL	Expires:	12/07/2026
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

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,...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:

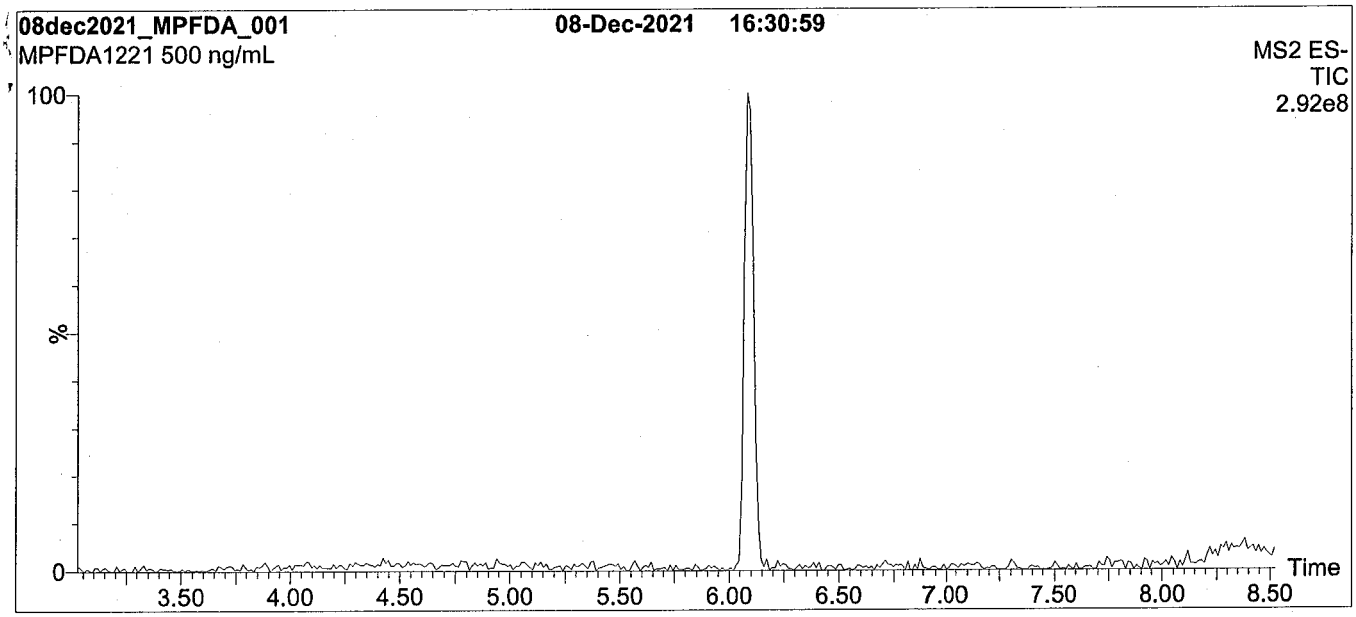
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

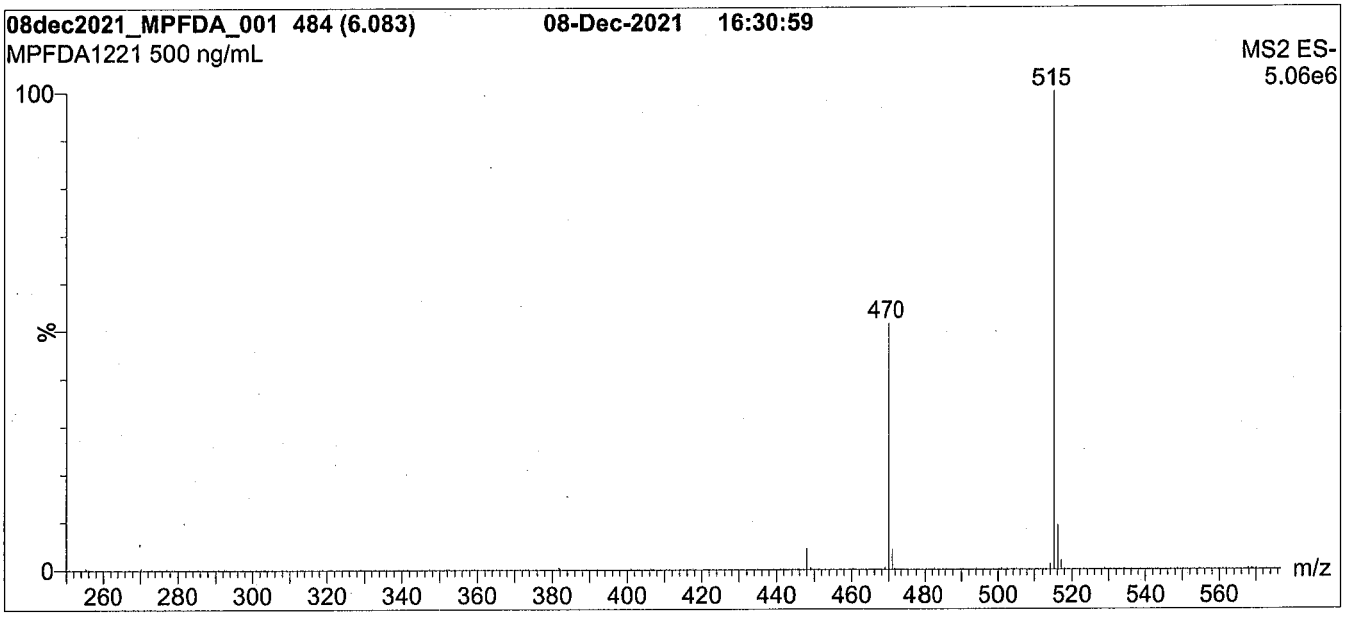
CALA Testing Accreditation No. A1226

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: **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

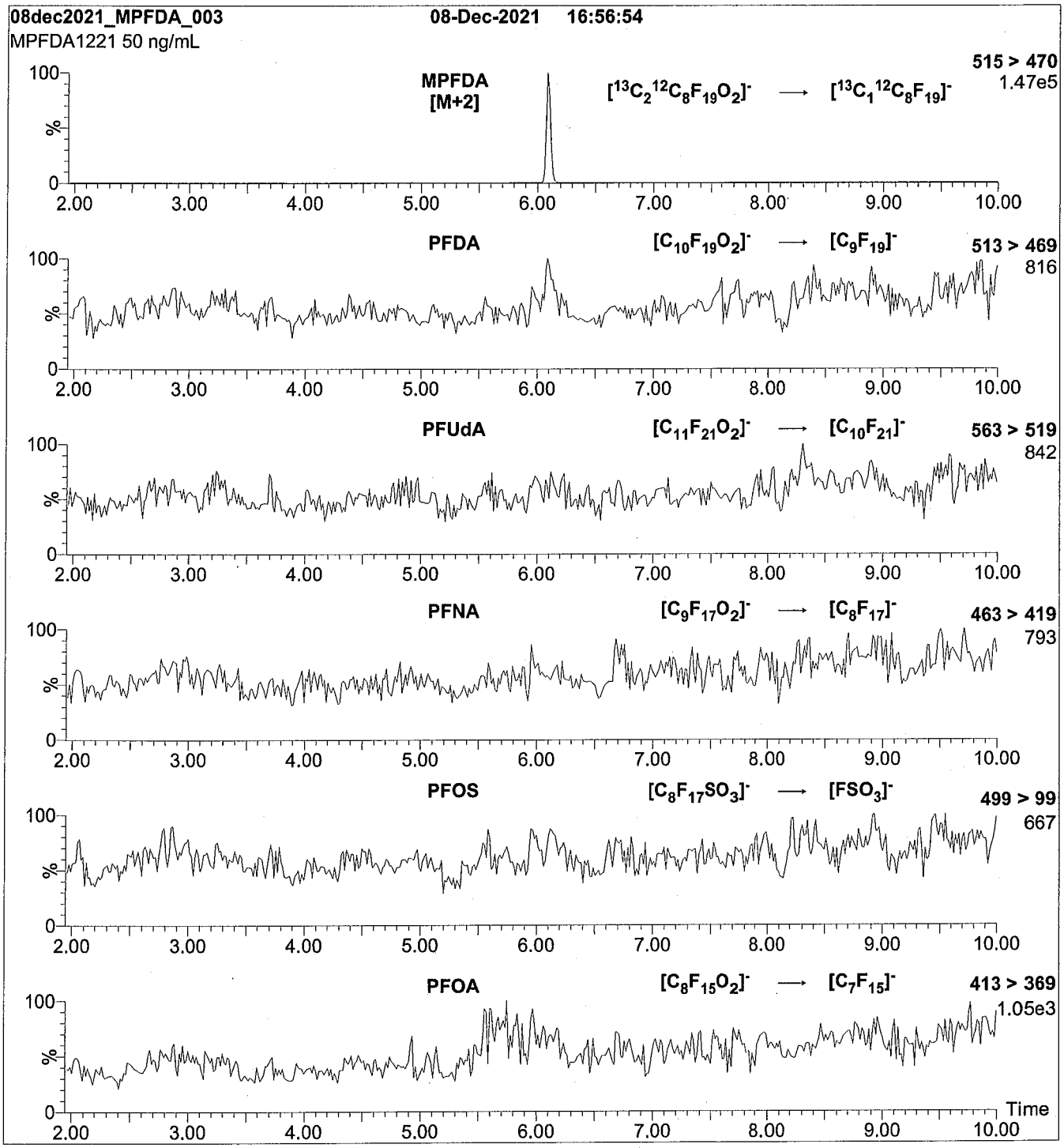
Flow: 300 µL/min

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

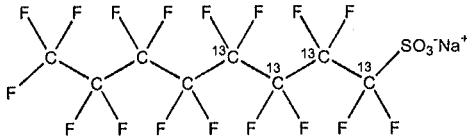
WELLINGTON LABORATORIES

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:

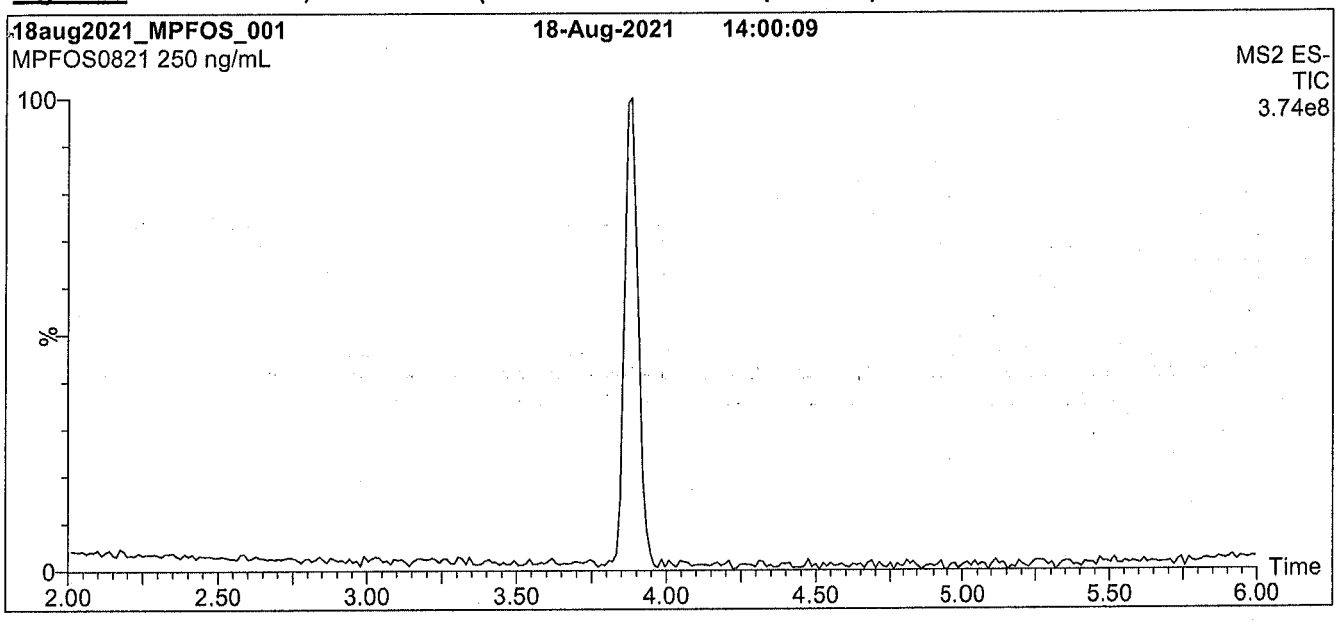
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

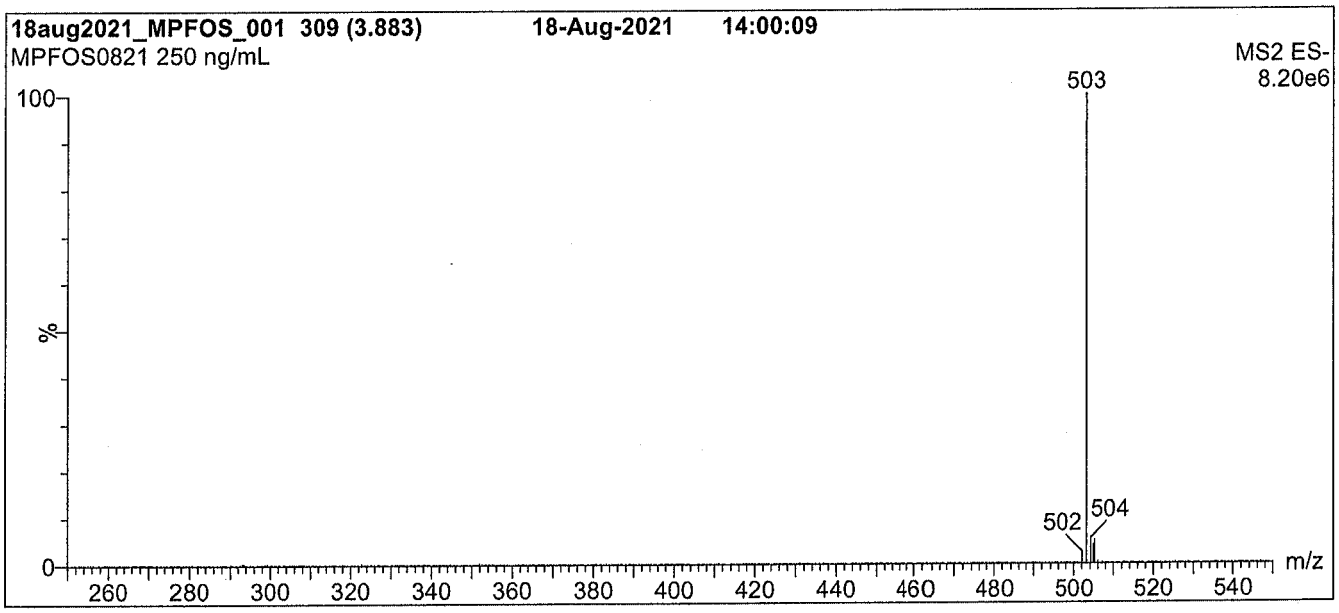
CALA Testing Accreditation No. A1226

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

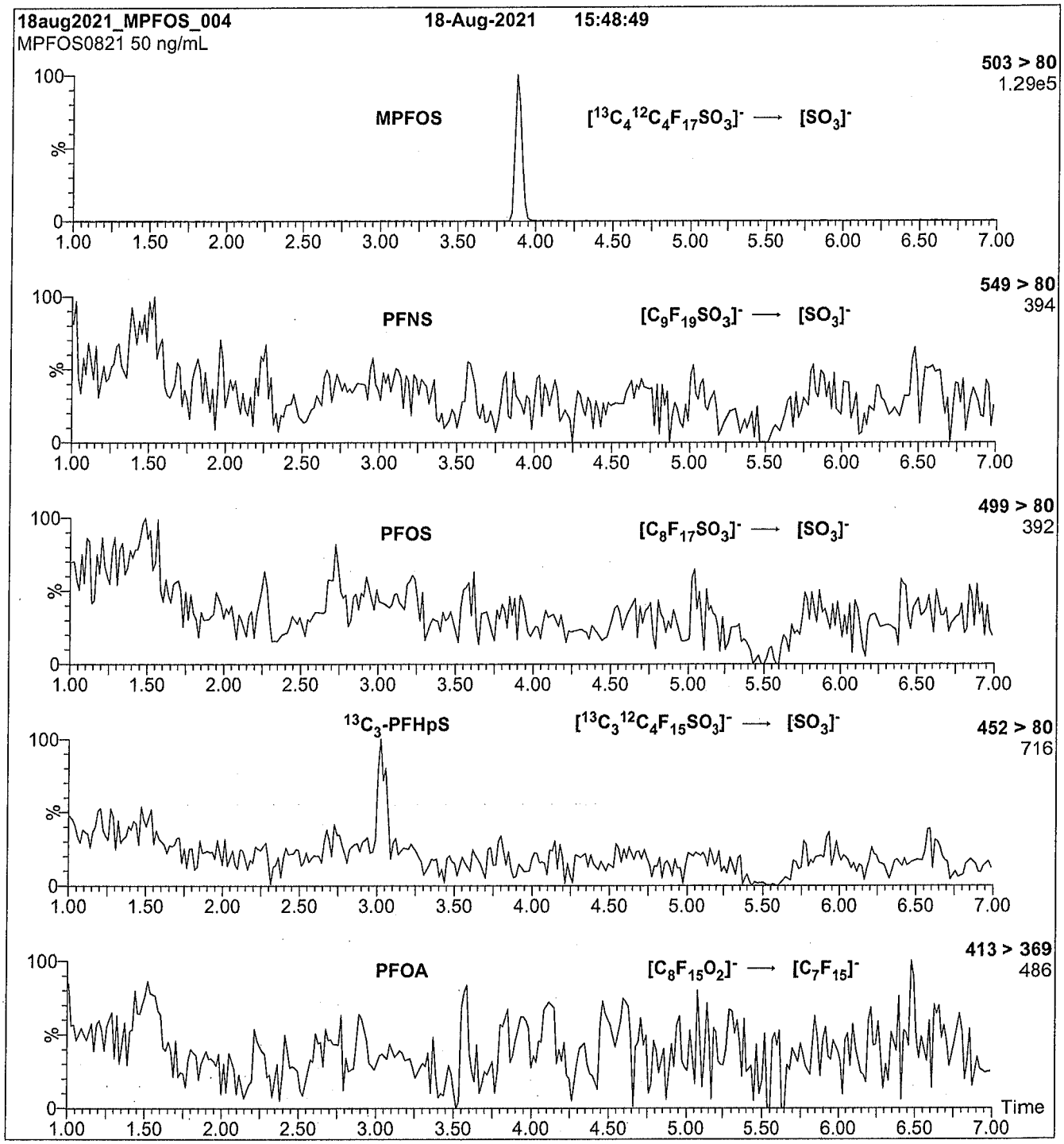
Flow: 300 µL/min

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

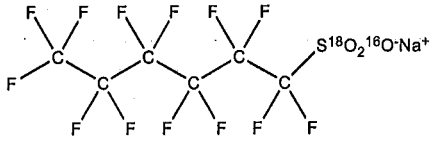
22A0121

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:

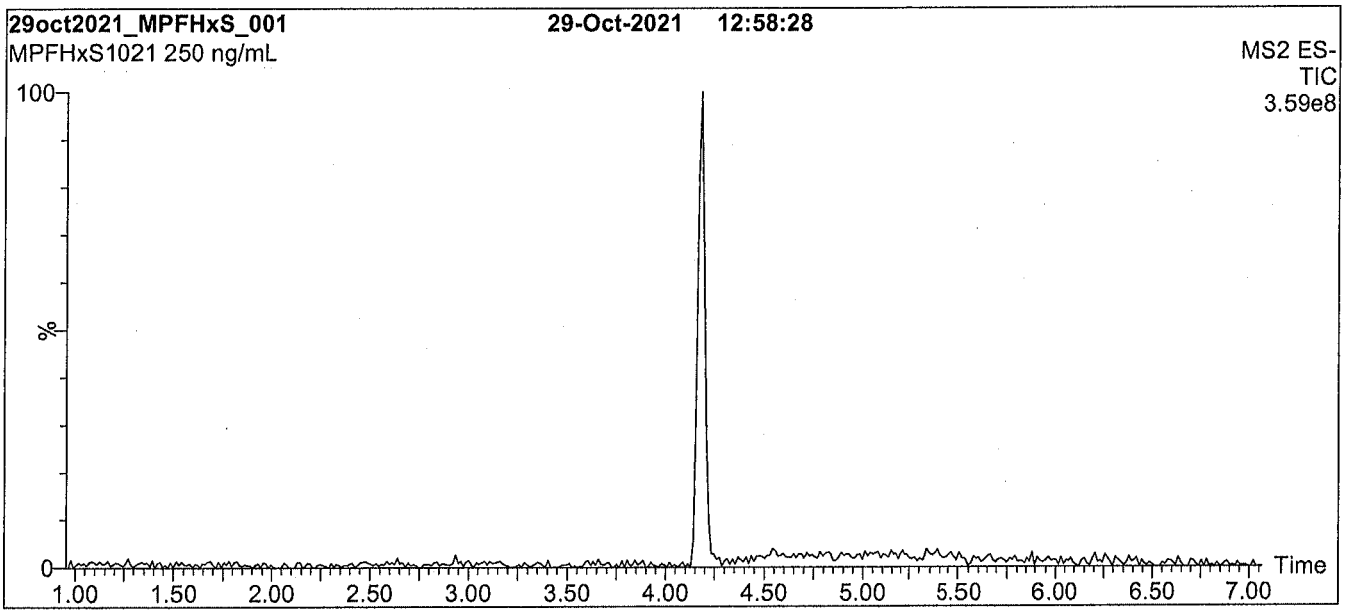
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

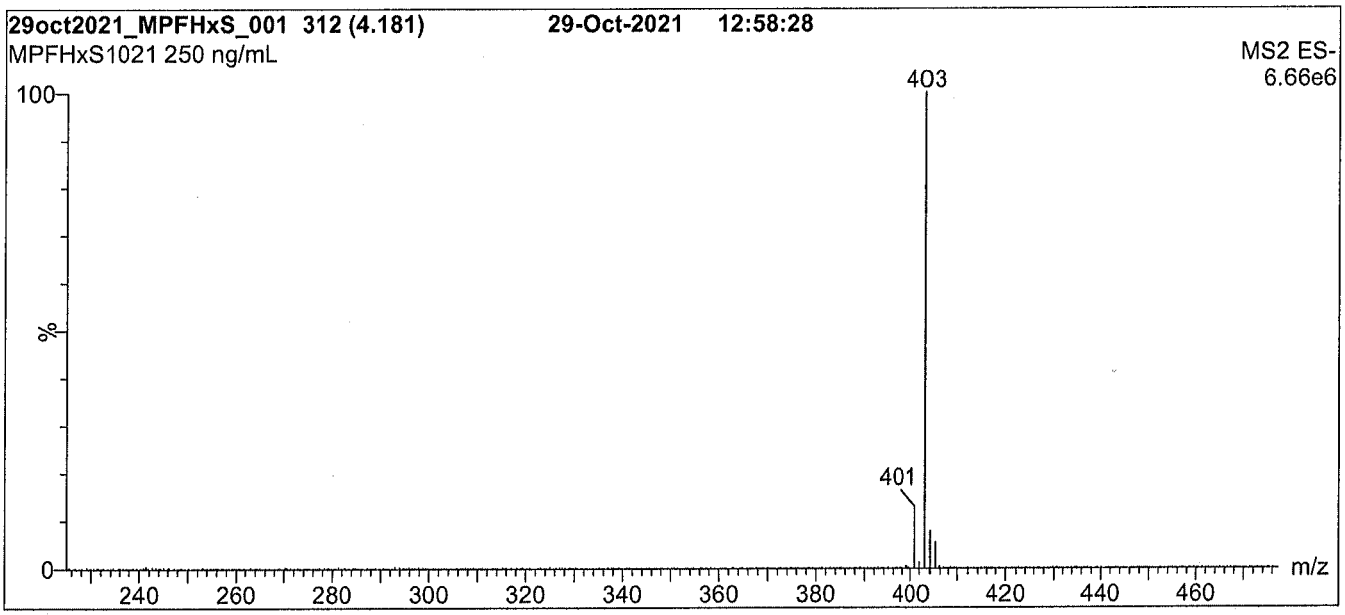
CALA Testing Accreditation No. A1226

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

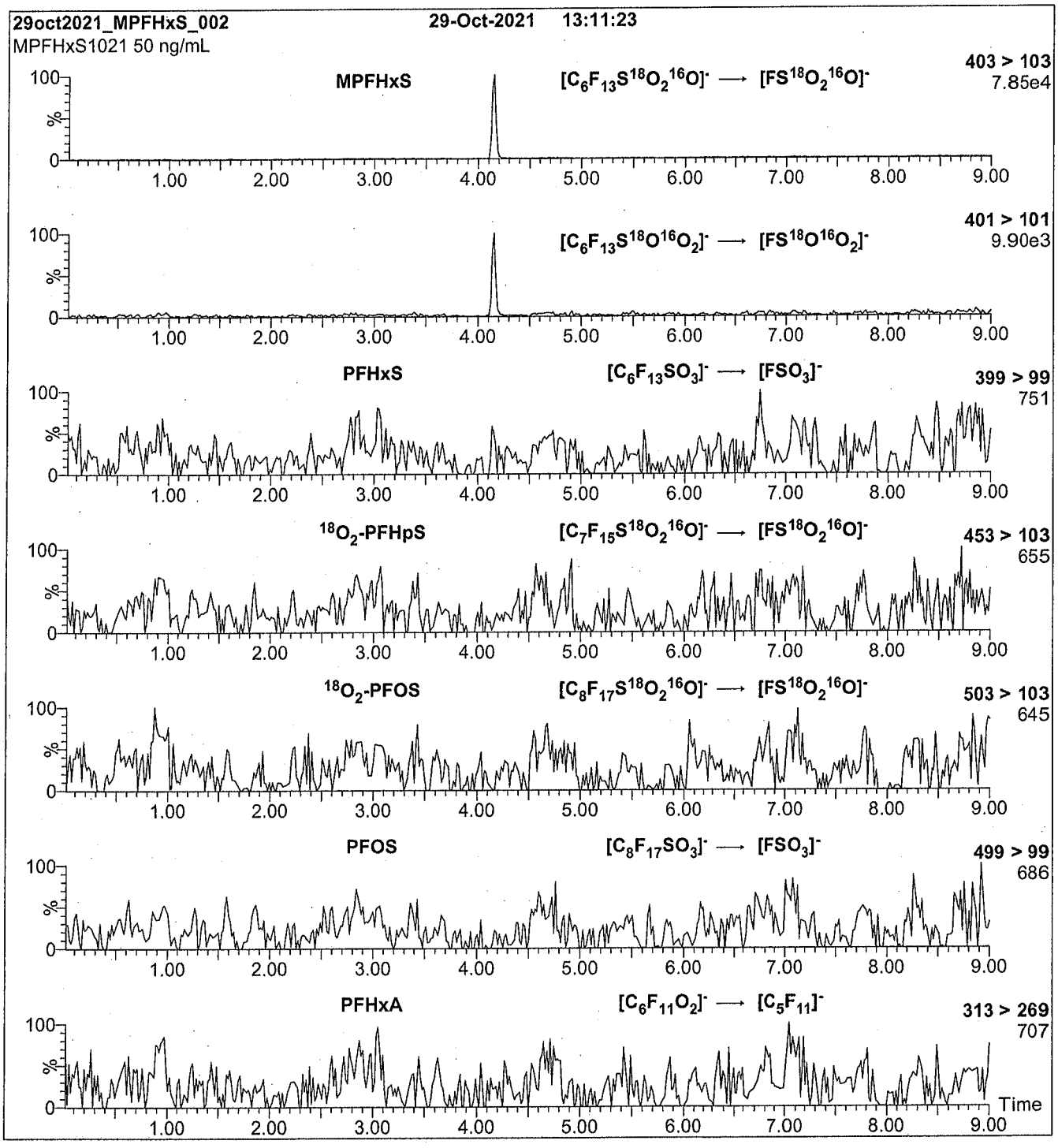
Flow: 300 µL/min

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

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:

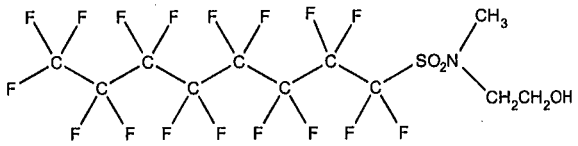
Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0116	PFAS - IIS M3PFBA 50ug/mL	08/19/2021	Wellington Laboratories	M3PFBA0721	08/19/2026	01/20/2022 15:48	by HGH	1.2
22A0117	PFAS - IIS MPFHxA 50ug/mL	10/04/2021	Wellington Laboratories	MPFHxA0921	10/04/2026	01/20/2022 15:48	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
CAS #: 24448-09-7

STRUCTURE:



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:

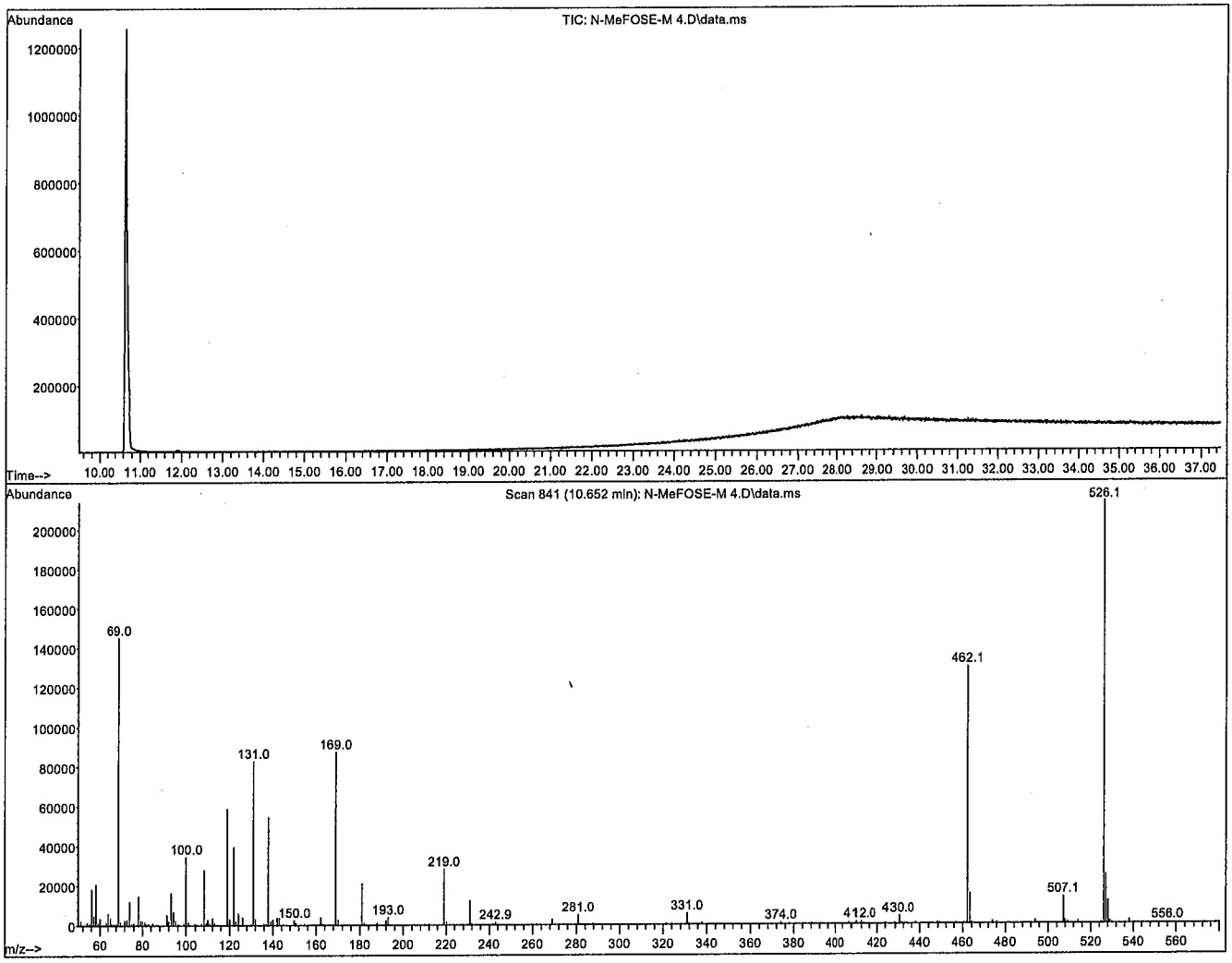
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

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)**



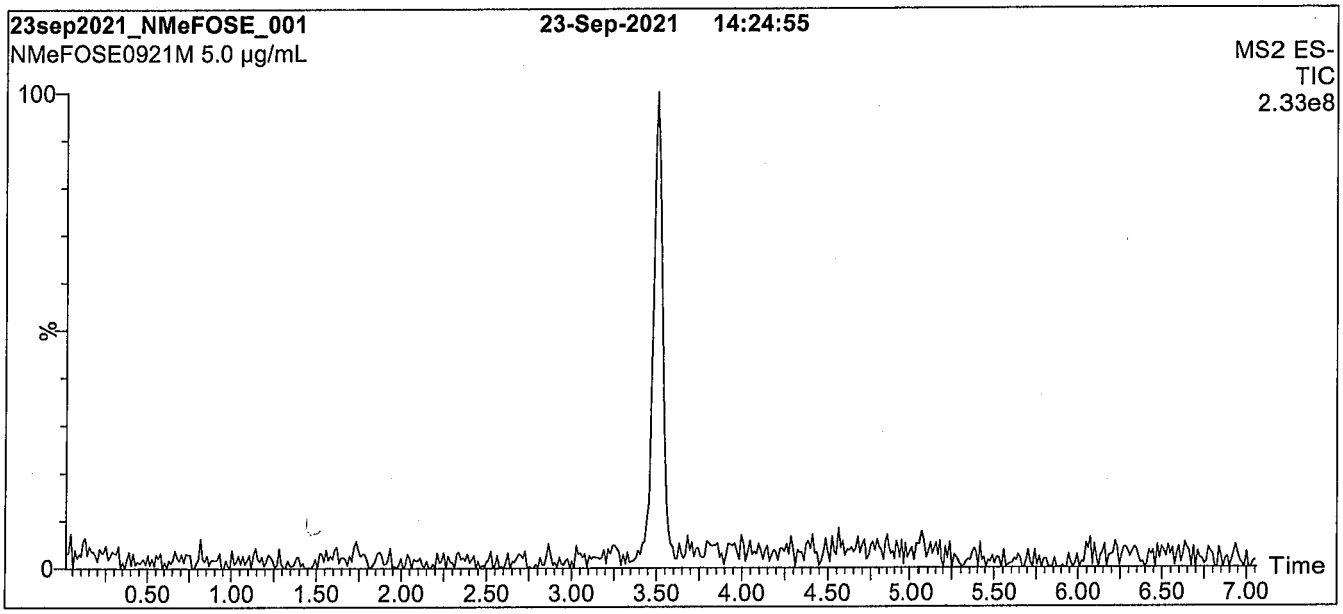
Conditions for Figure 1:

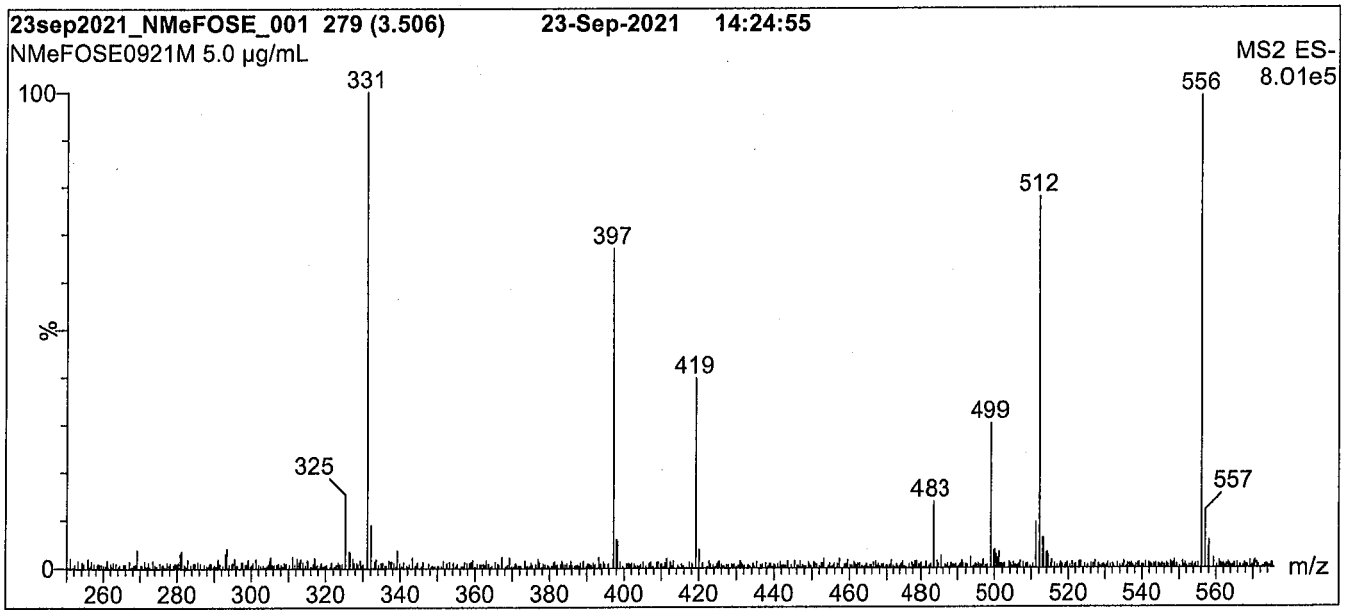
Agilent 7890A HRGC
Agilent 5975C MSD

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

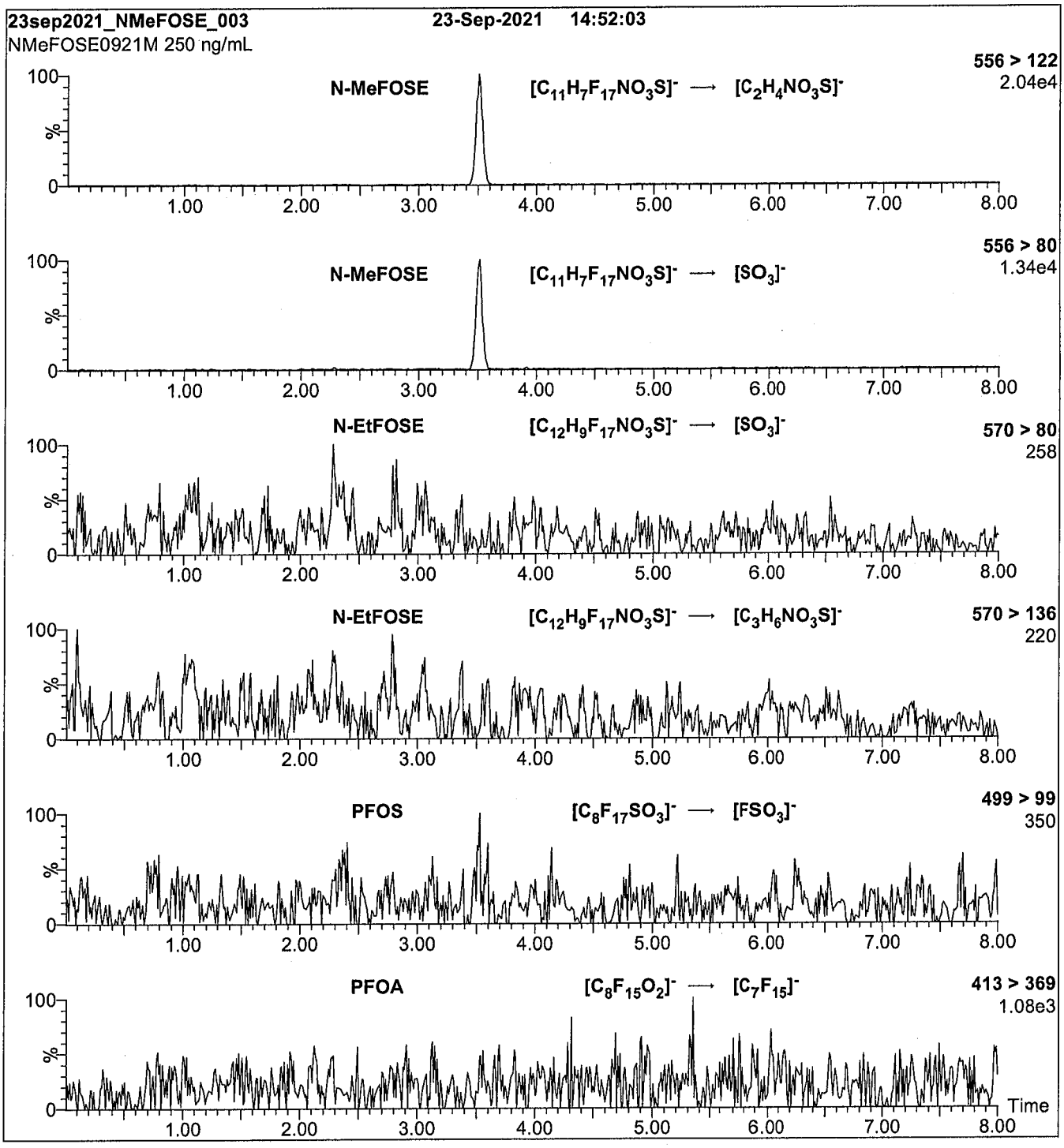
Flow: 300 µL/min

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

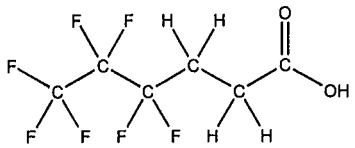
Reviewed By

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:

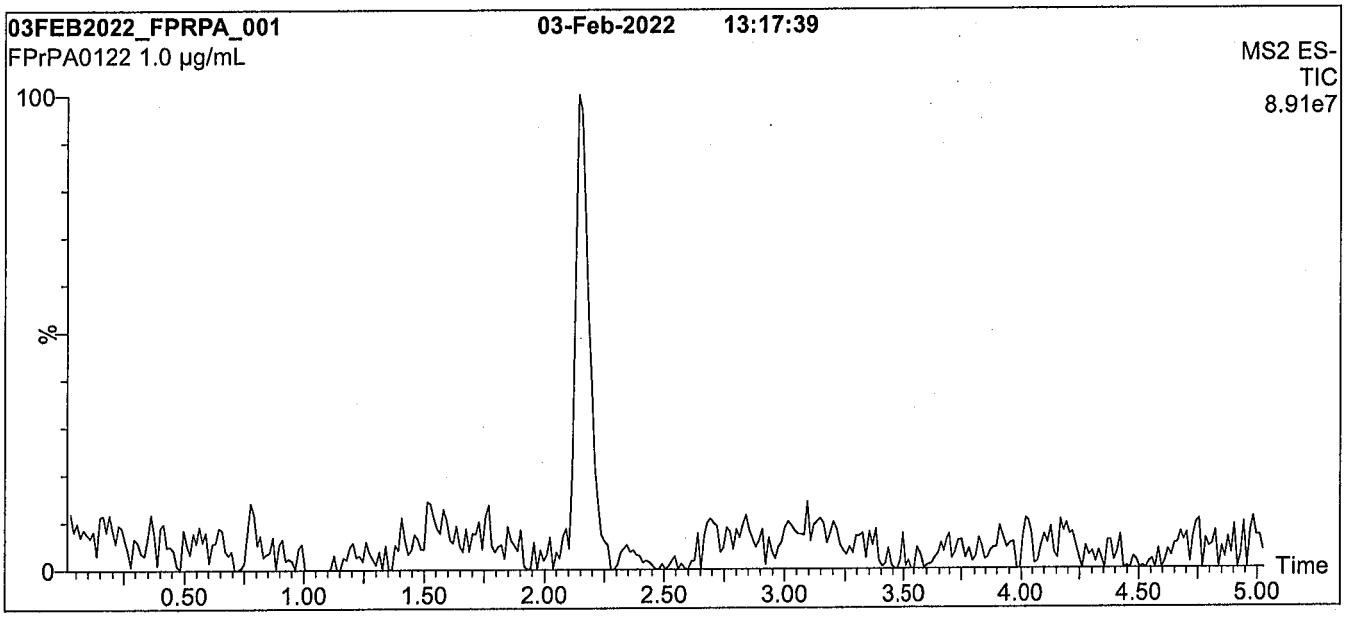
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

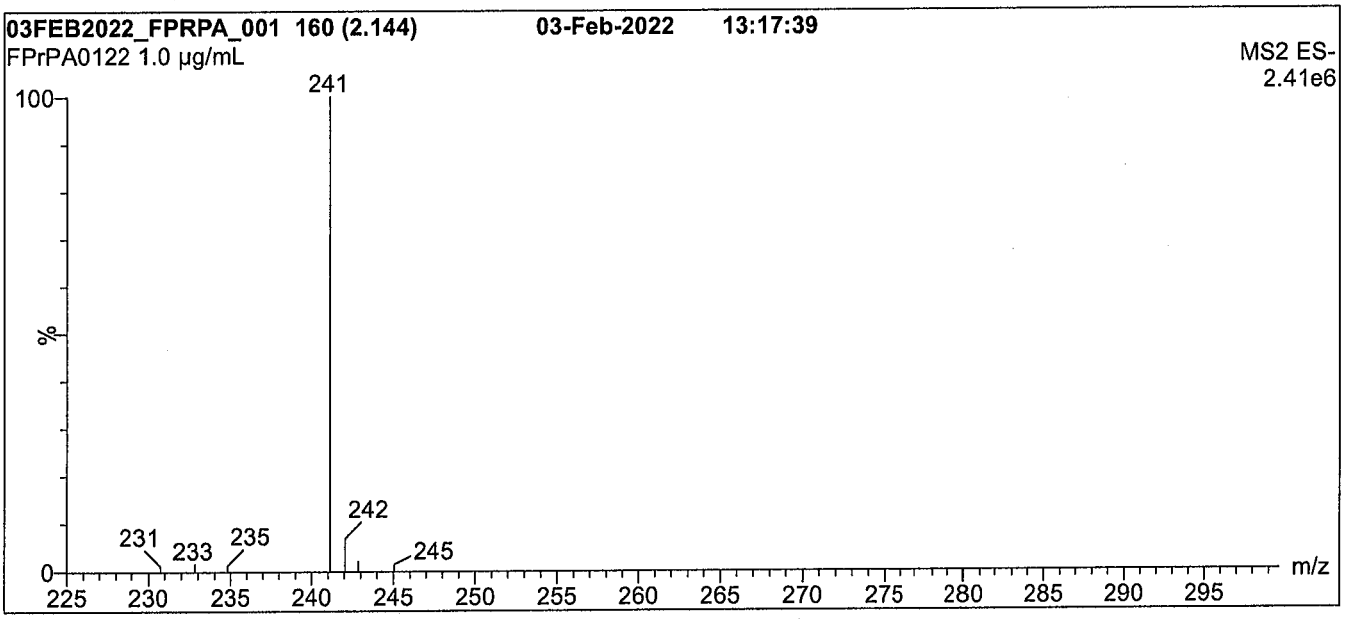
CALA Testing Accreditation No. A1226

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

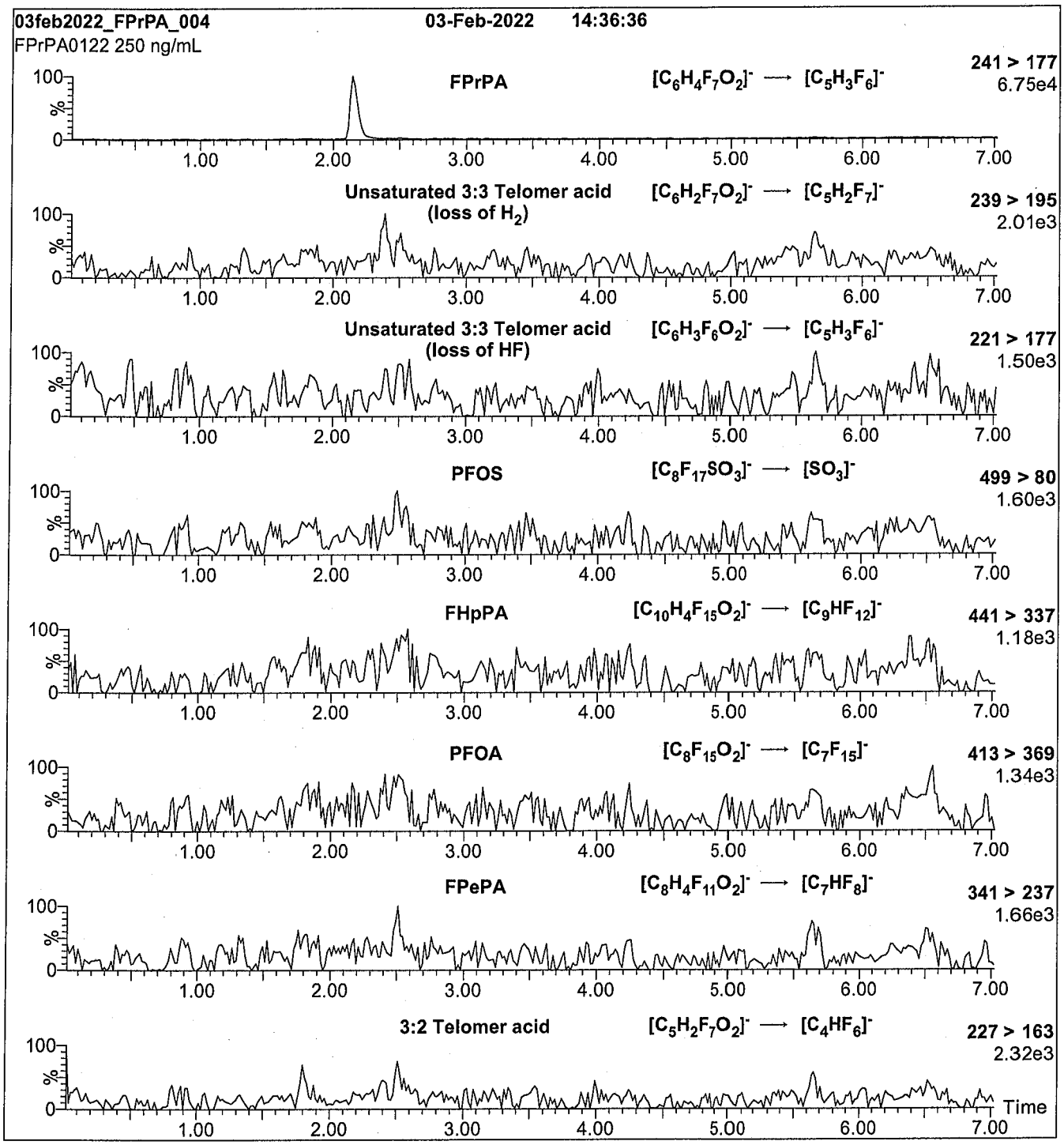
Flow: 300 µL/min

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

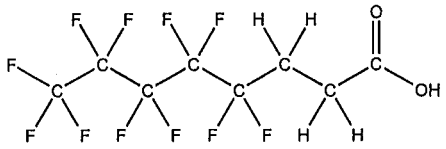
Reviewed By

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:

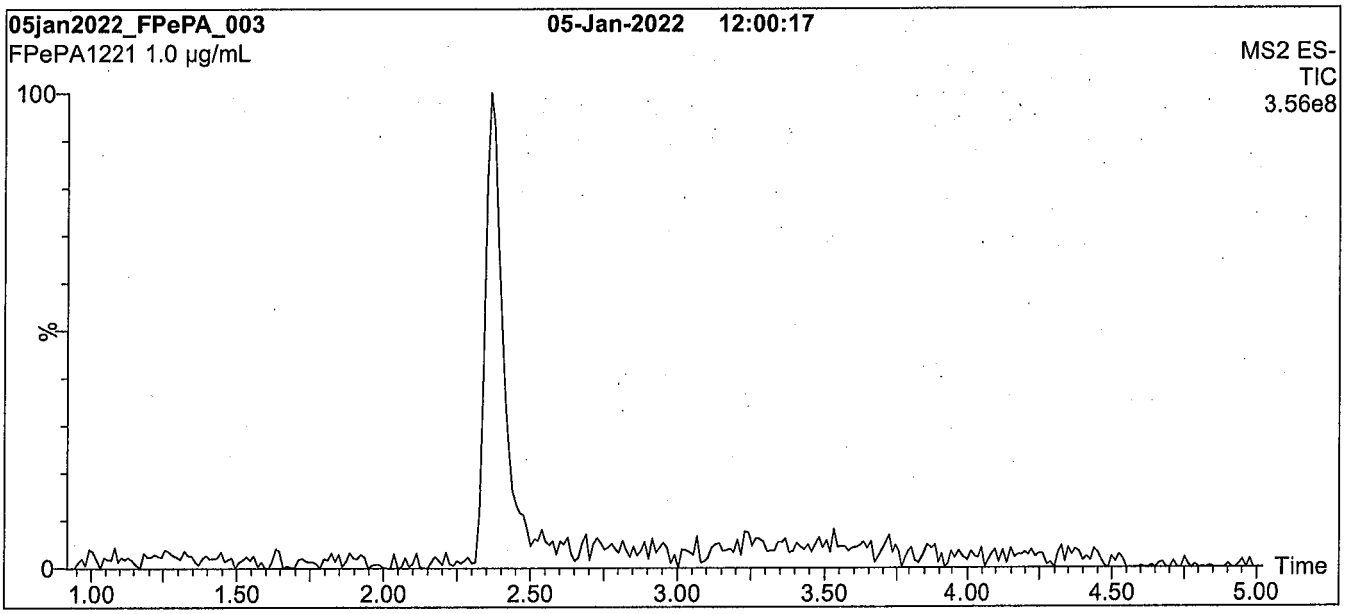
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

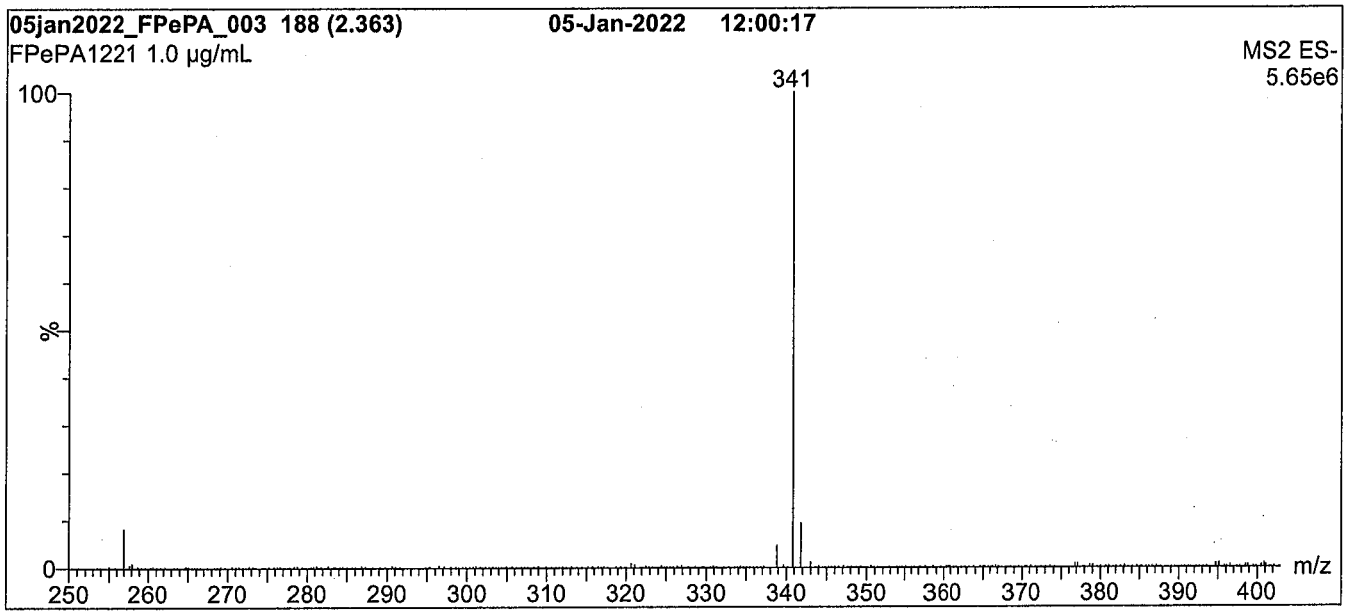
CALA Testing Accreditation No. A1226

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

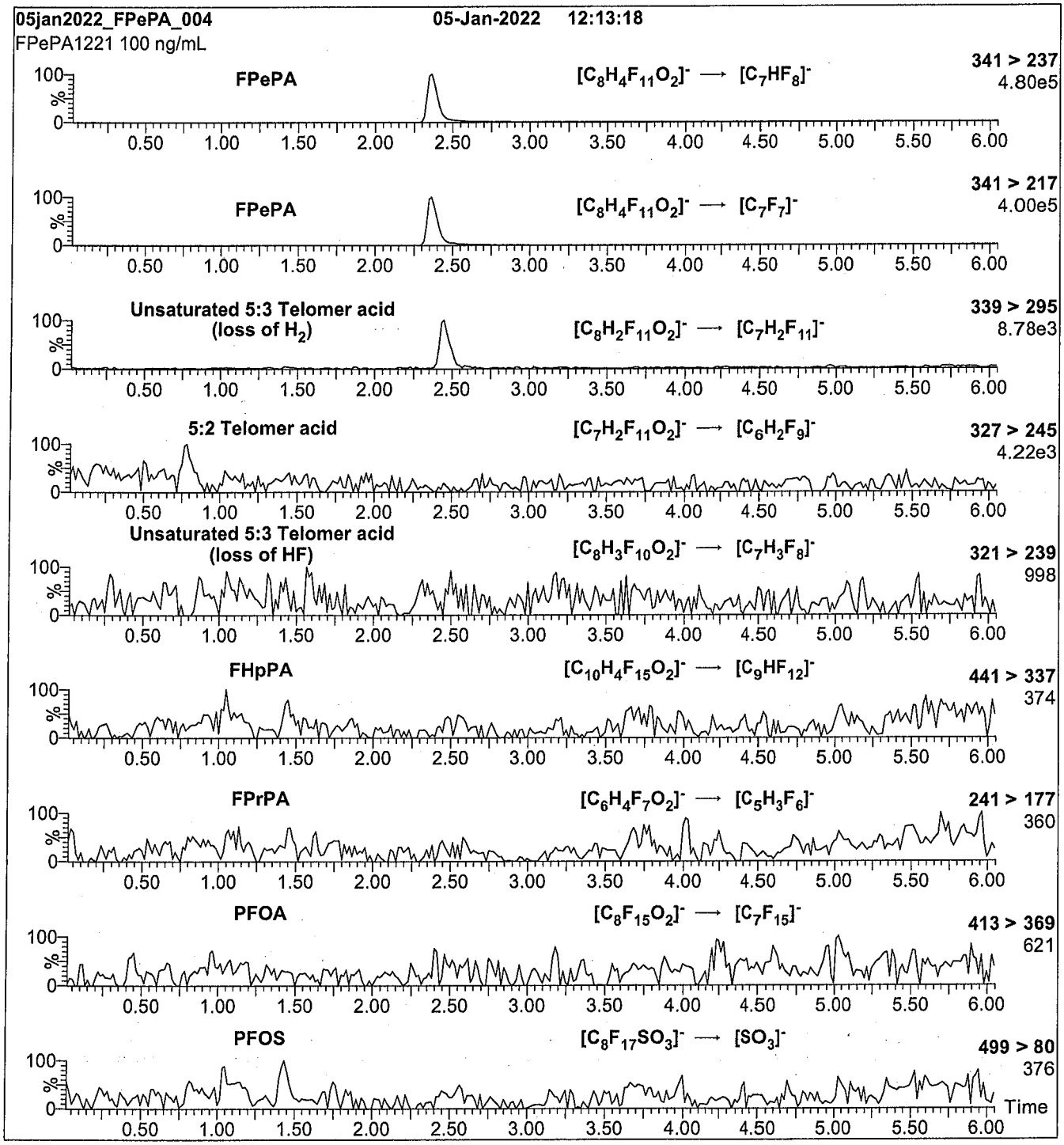
Flow: 300 µL/min

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

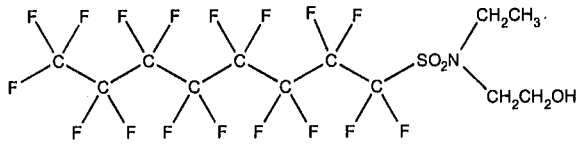
Date

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:

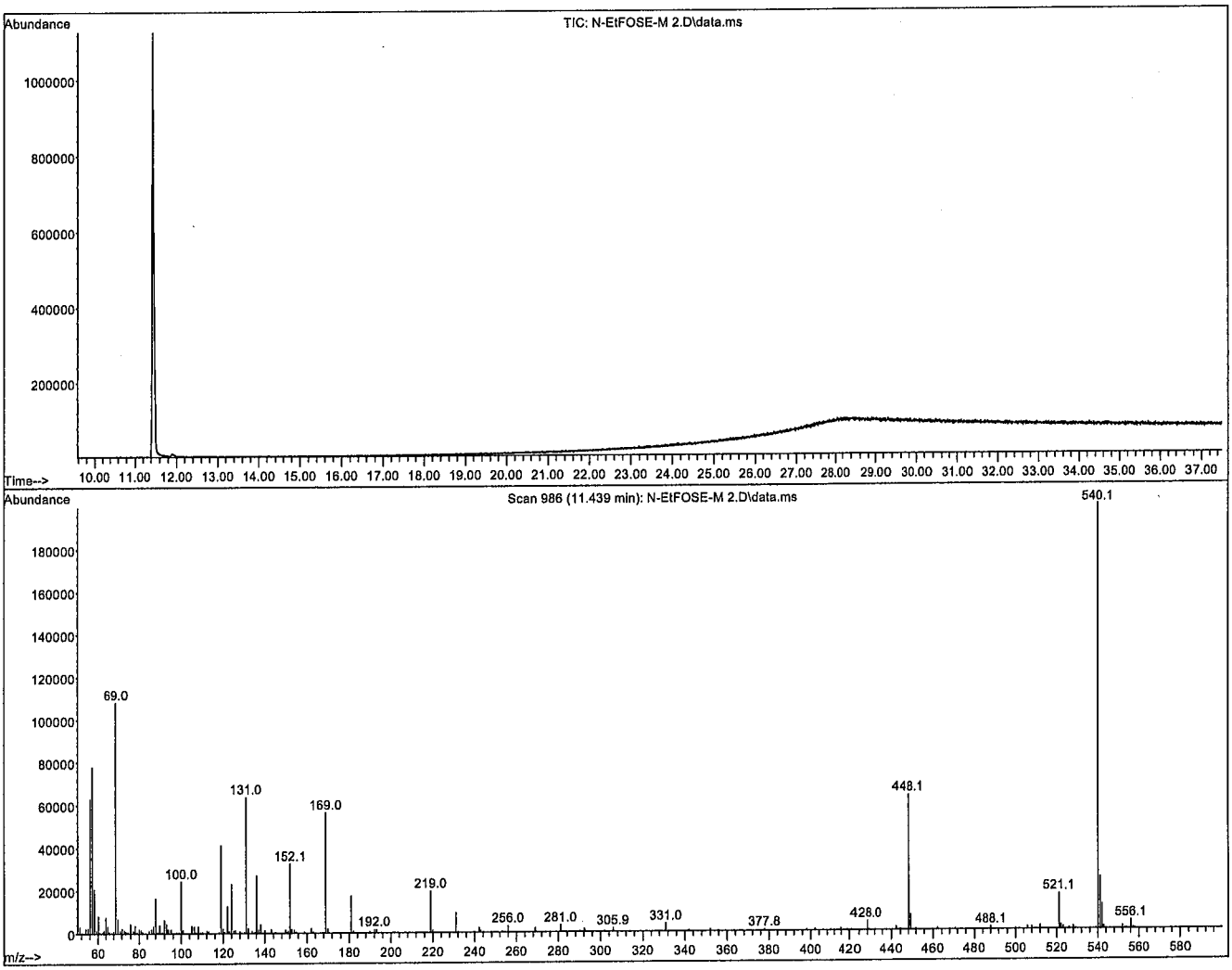
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

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)**



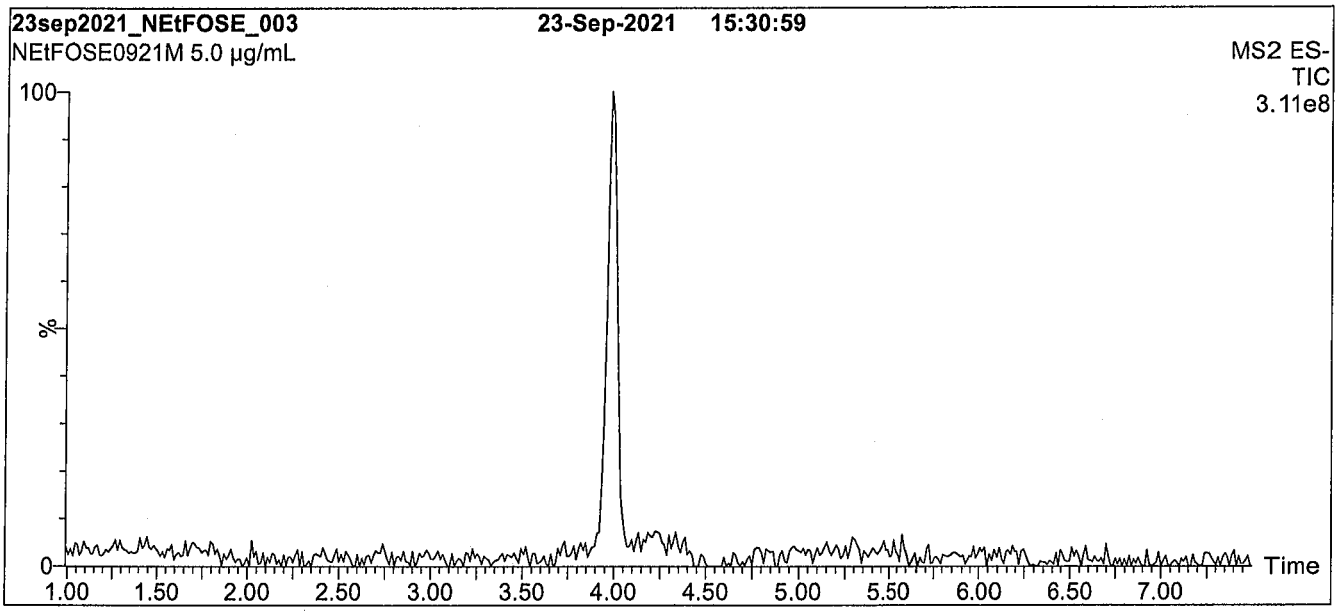
Conditions for Figure 1:

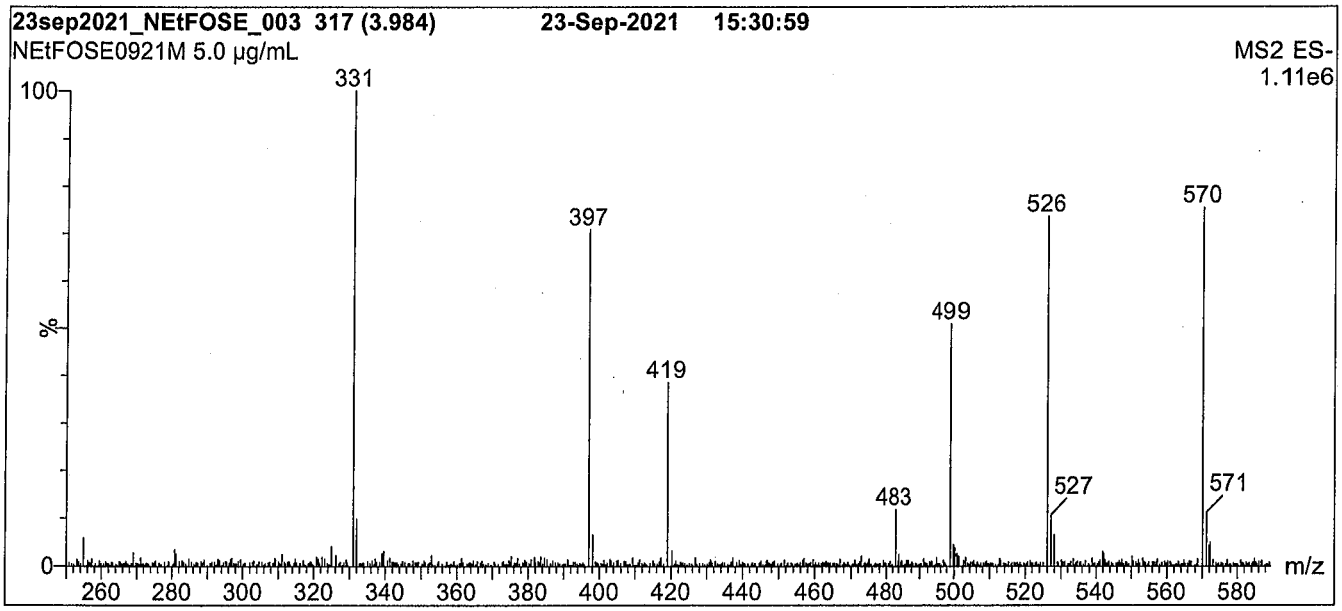
Agilent 7890A HRGC
Agilent 5975C MSD

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

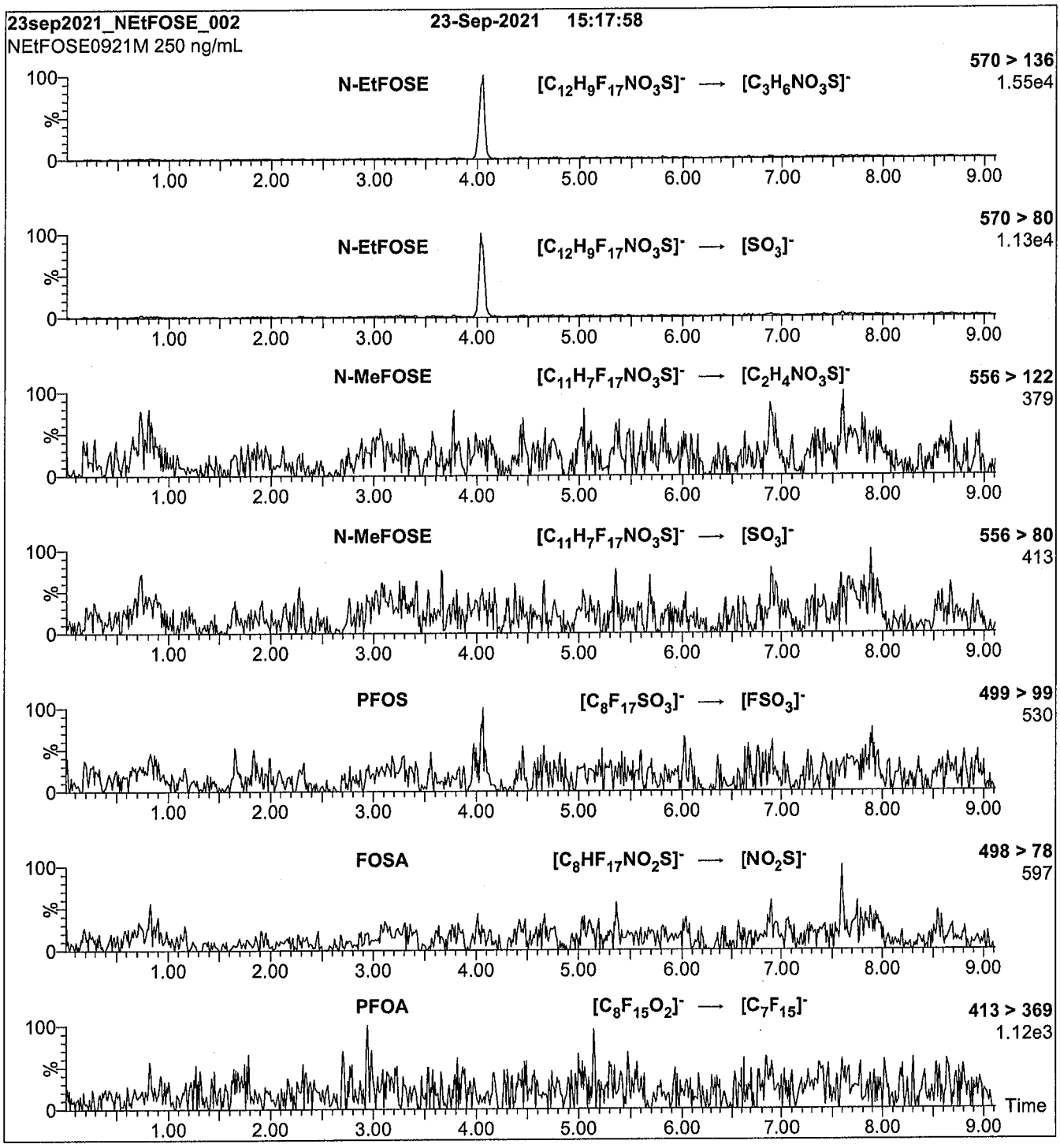
Flow: 300 µL/min

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

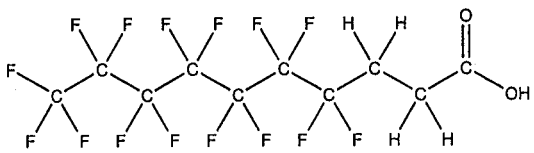
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020
22C0311

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: $C_{10}H_5F_{15}O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/12/2020
EXPIRY DATE: (mm/dd/yyyy) 11/12/2025
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 442.12
SOLVENT(S): Methanol

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:

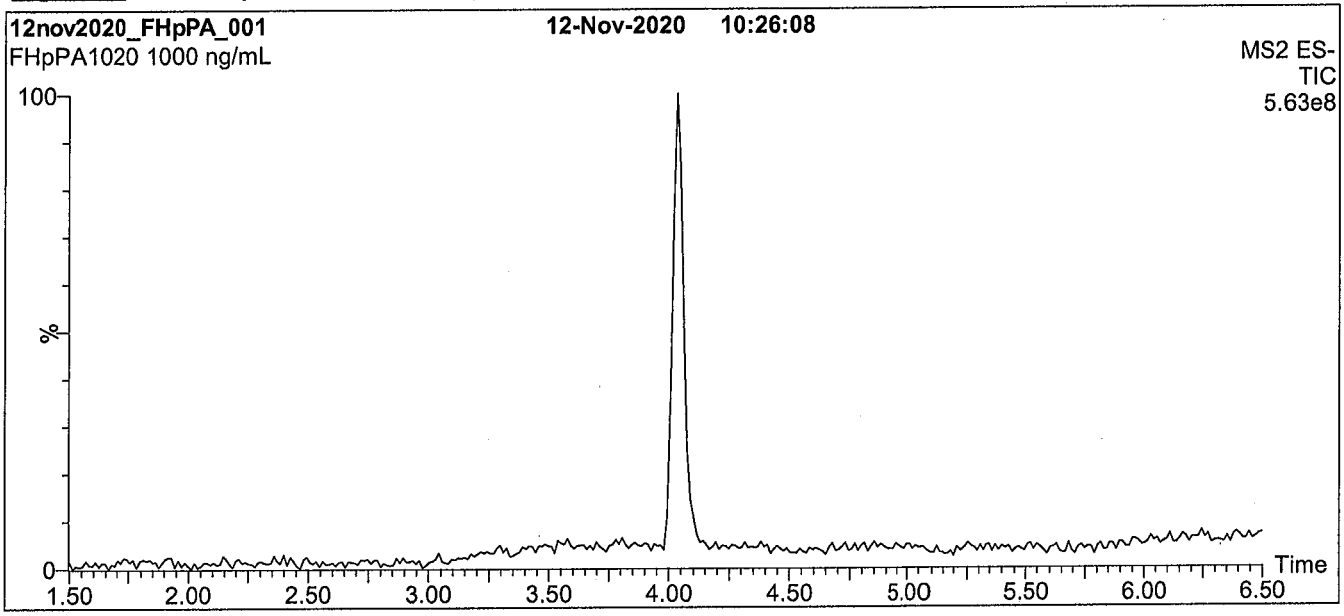
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

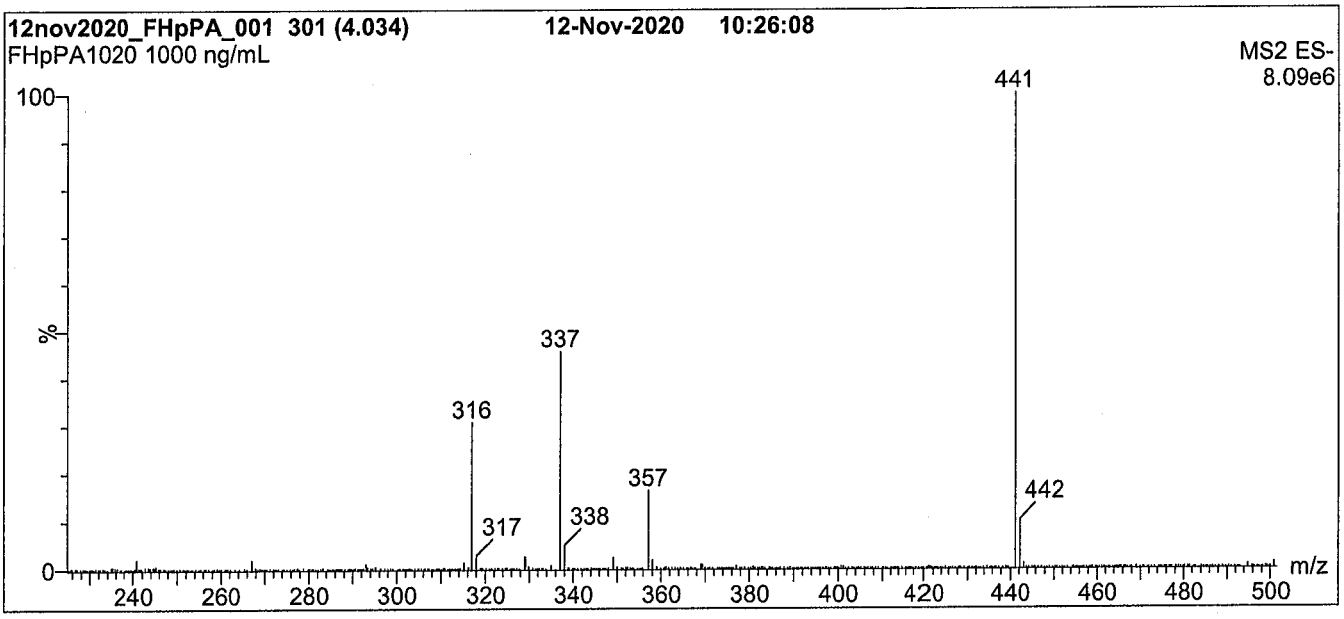
CALA Testing Accreditation No. A1226

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

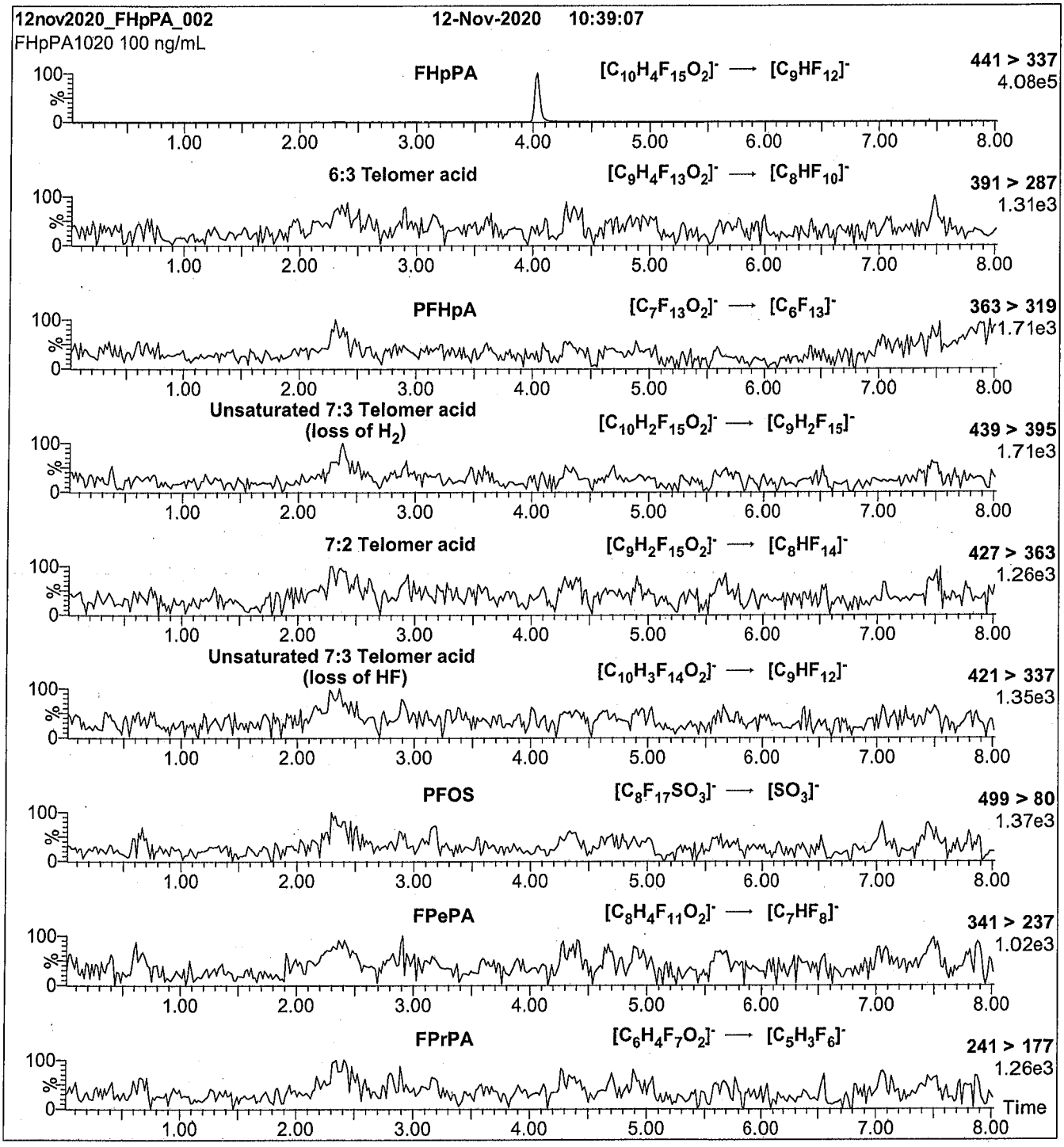
Flow: 300 µL/min

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

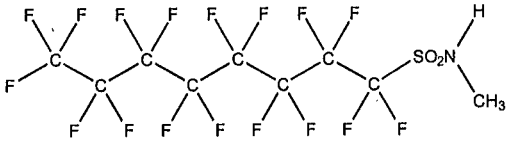
Reviewed By

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:

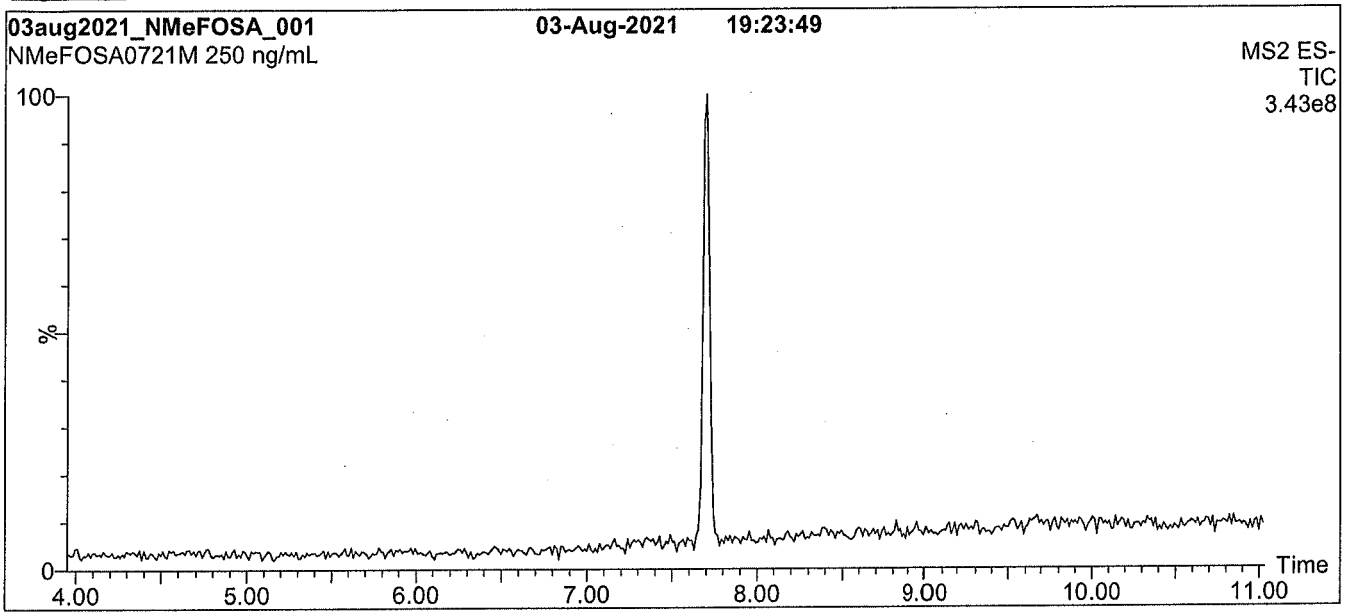
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

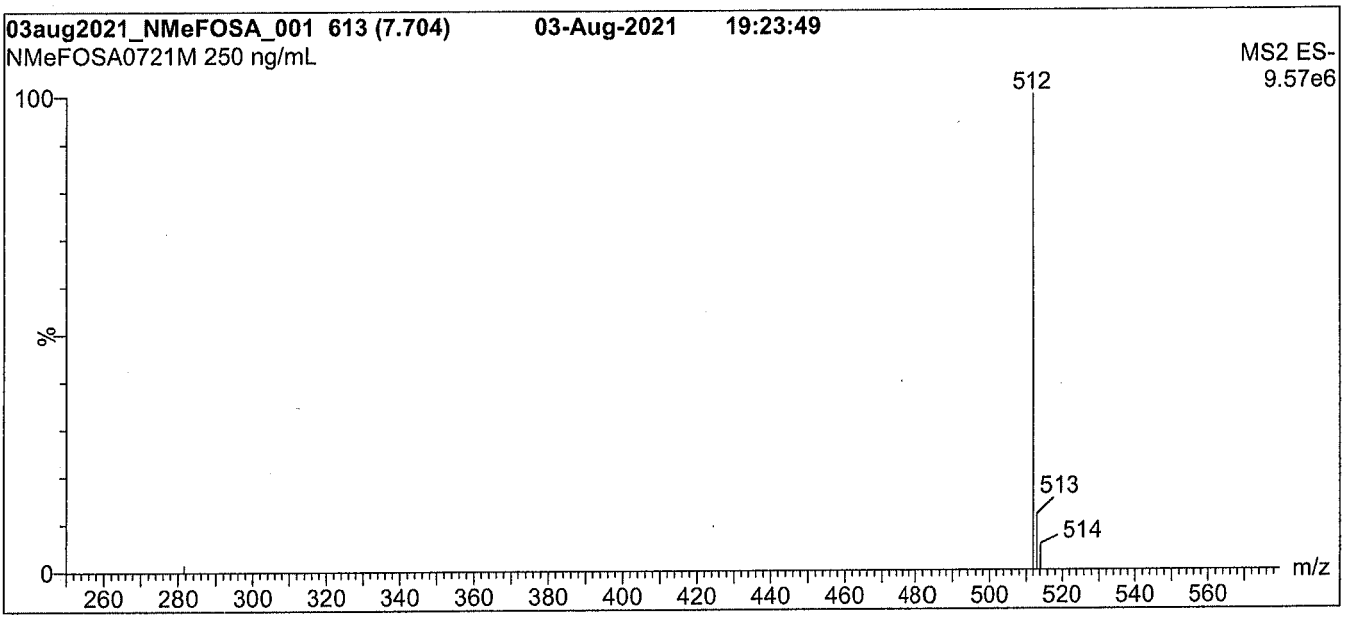
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED 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

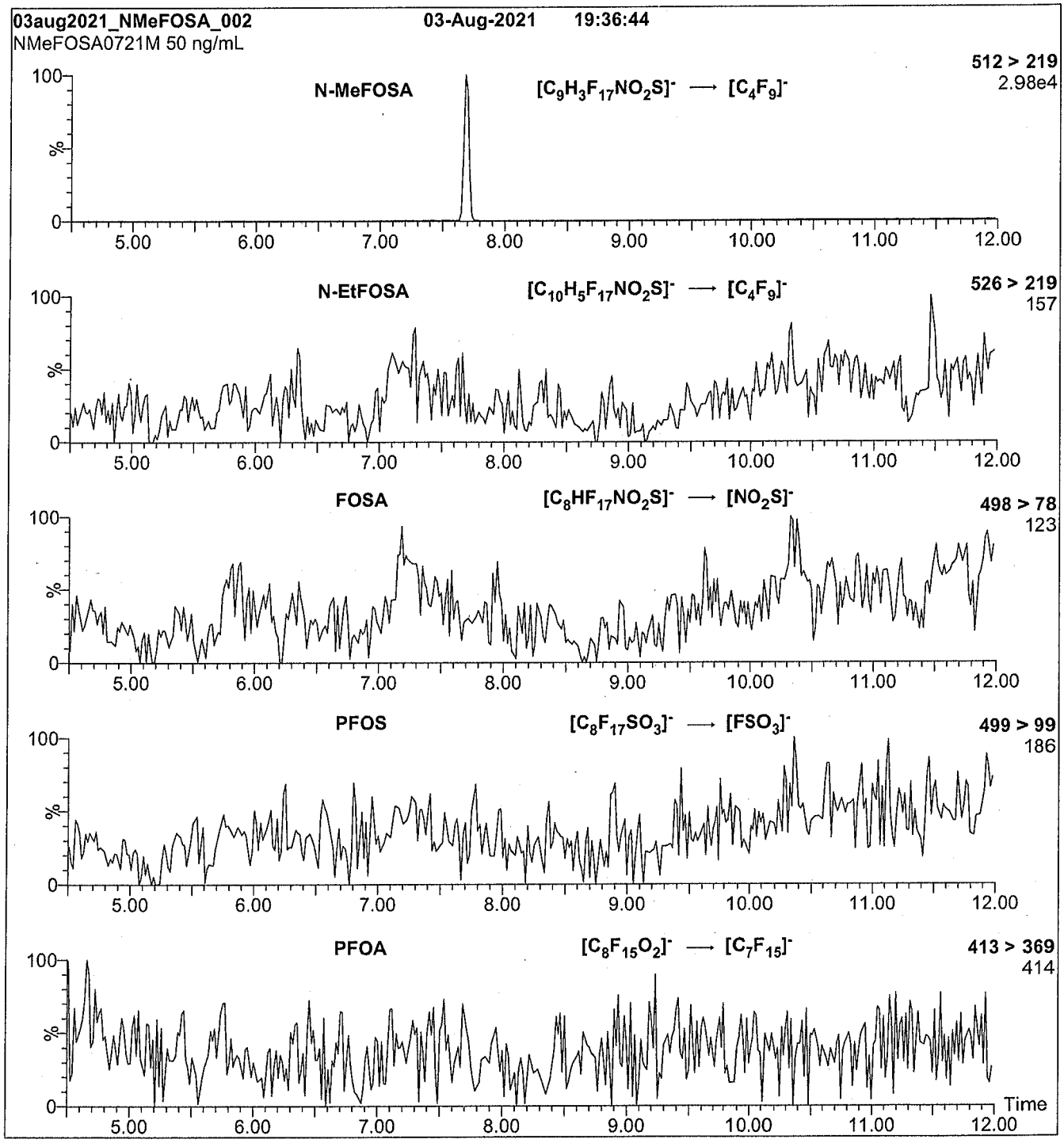
Flow: 300 µL/min

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

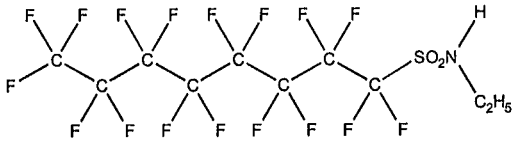
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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:

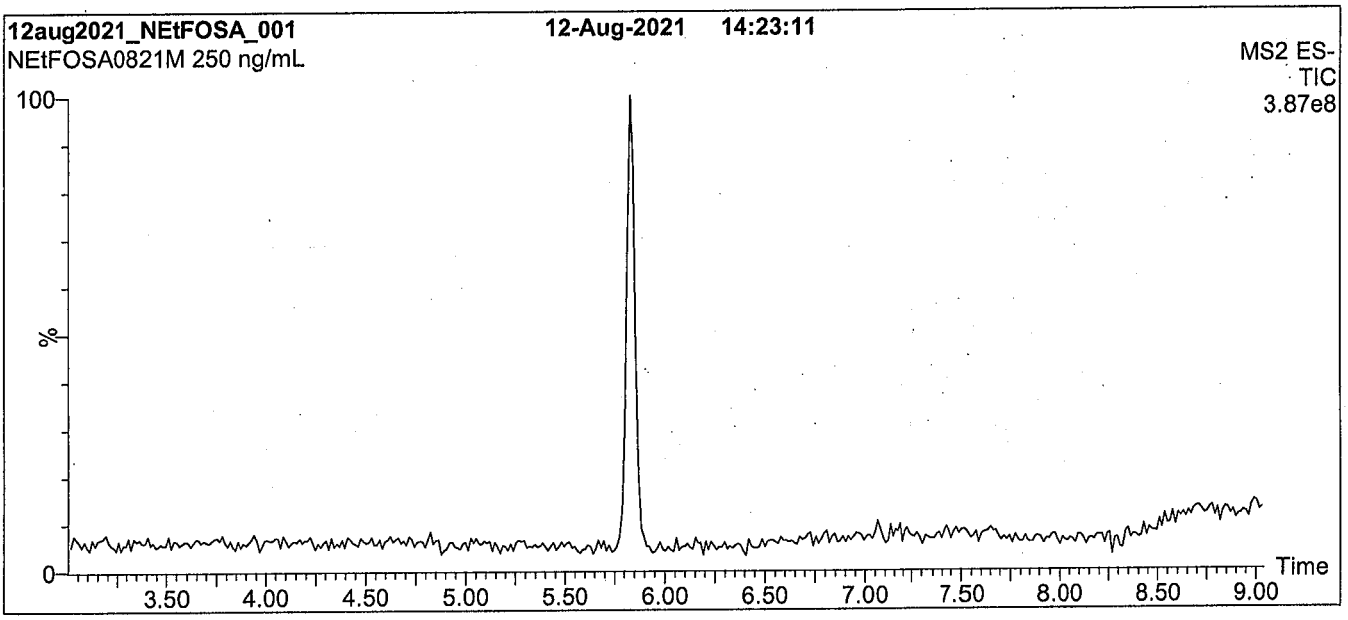
- See page 2 for further details.

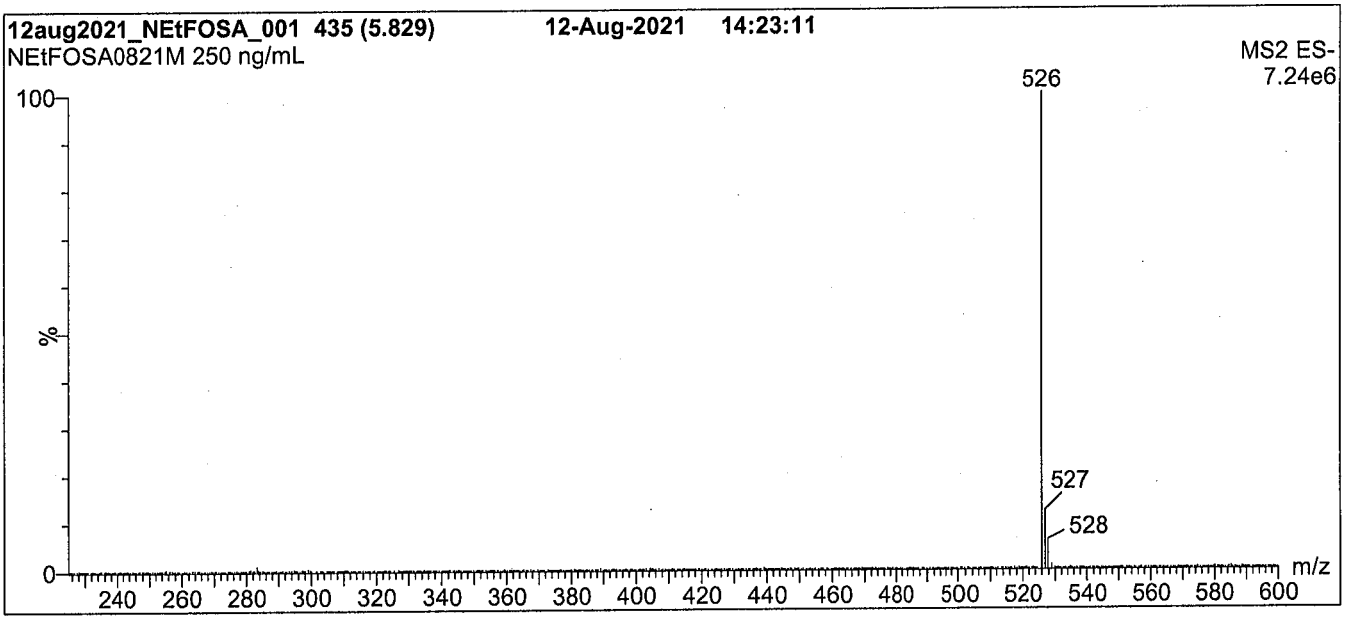
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

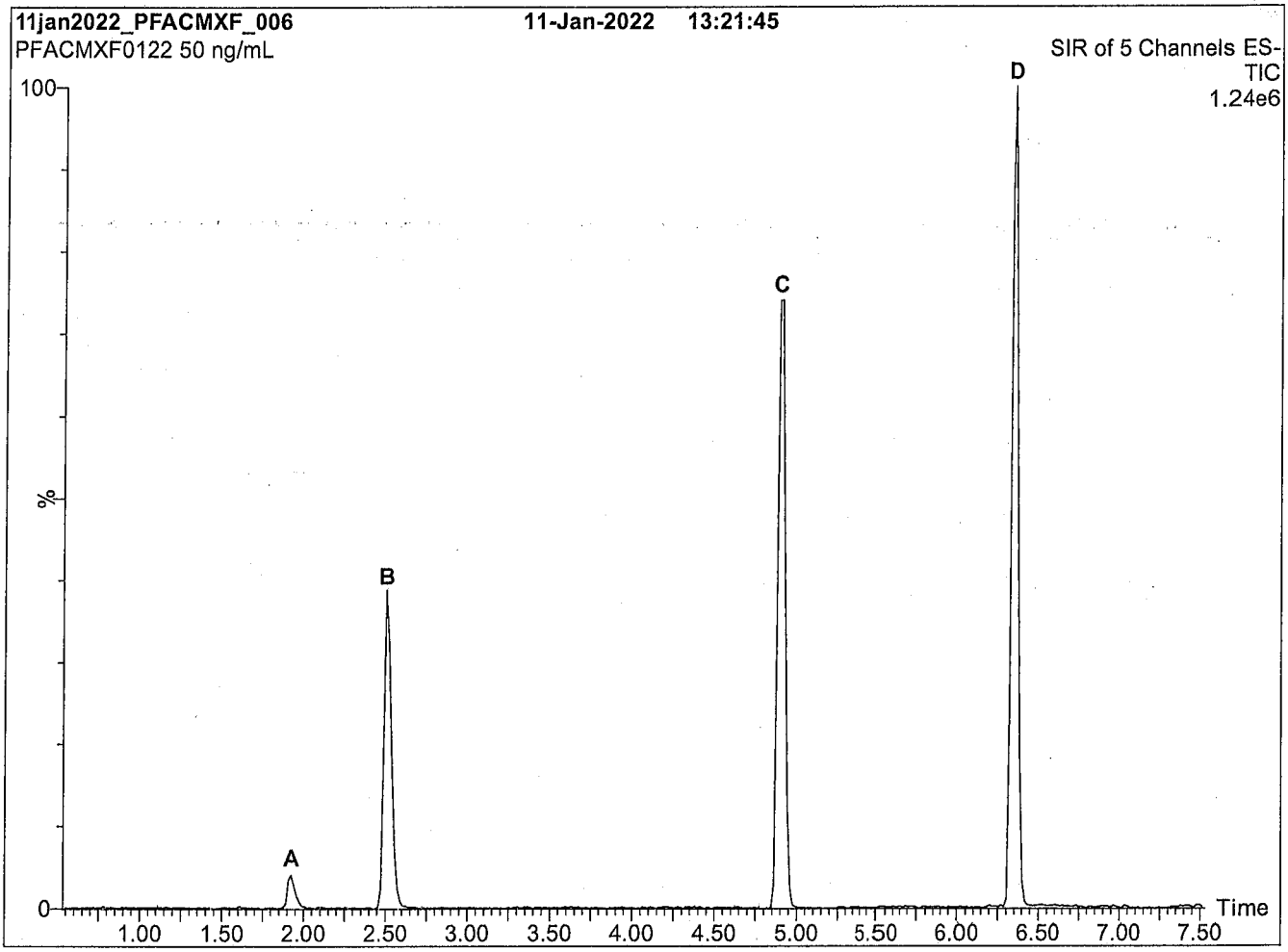
Table A: **PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))**

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

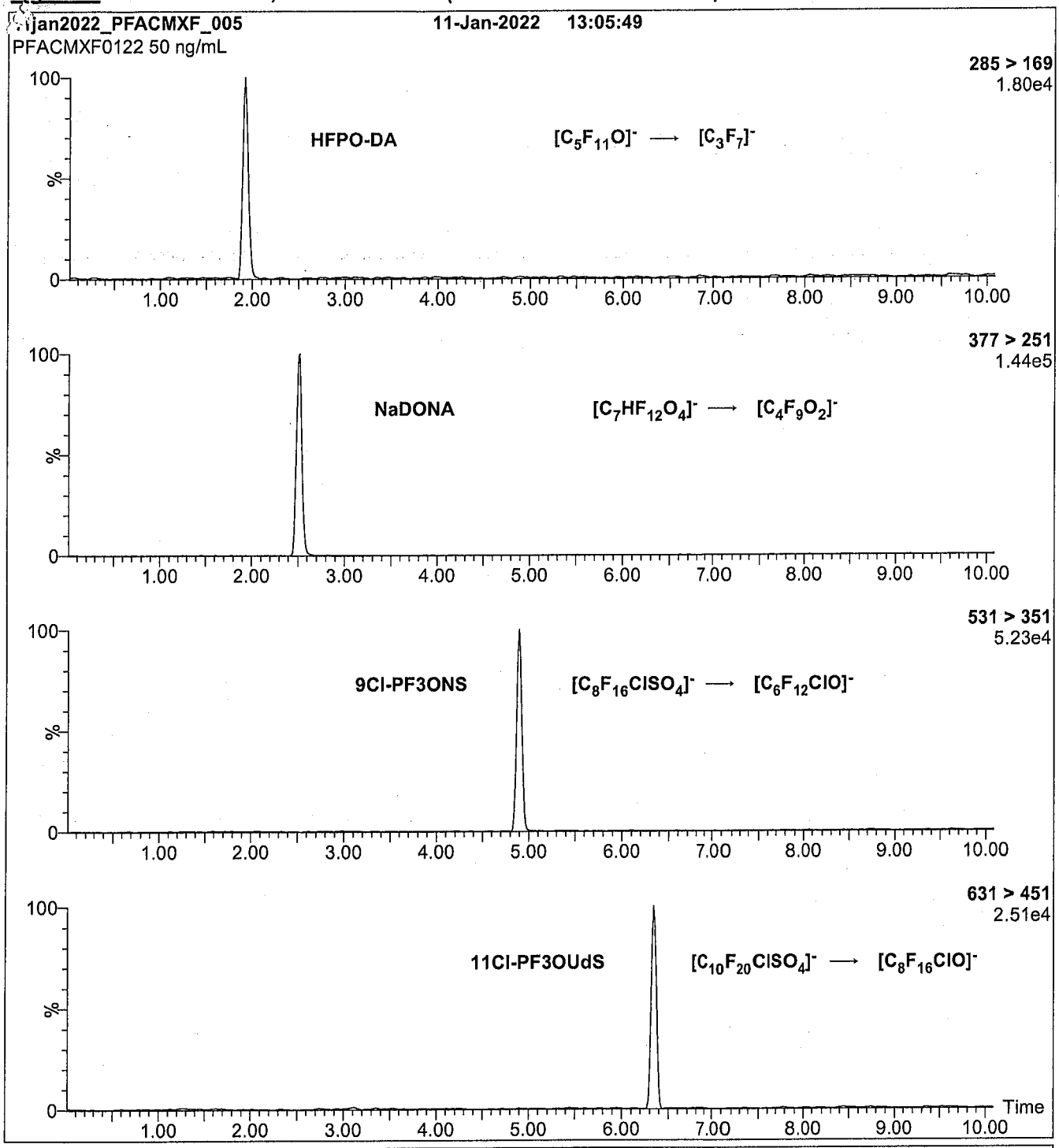
Flow: 300 µL/min

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	$CF_3(CF_2)_7SO_2N(C_2H_5)CH_2CO_2H$	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(C_2H_5)CH_2CO_2H$	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF_2CF(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	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	

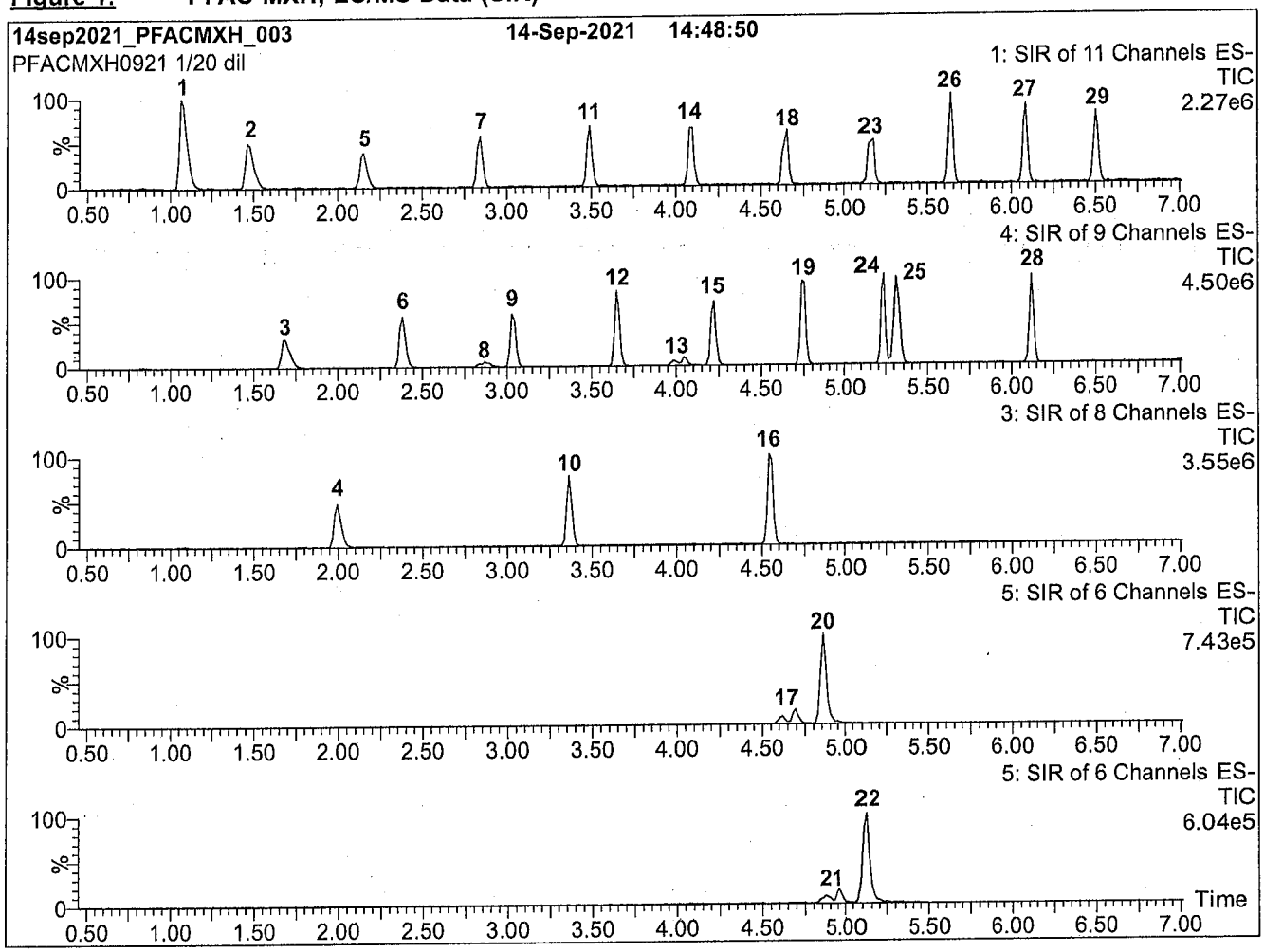
* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

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)**

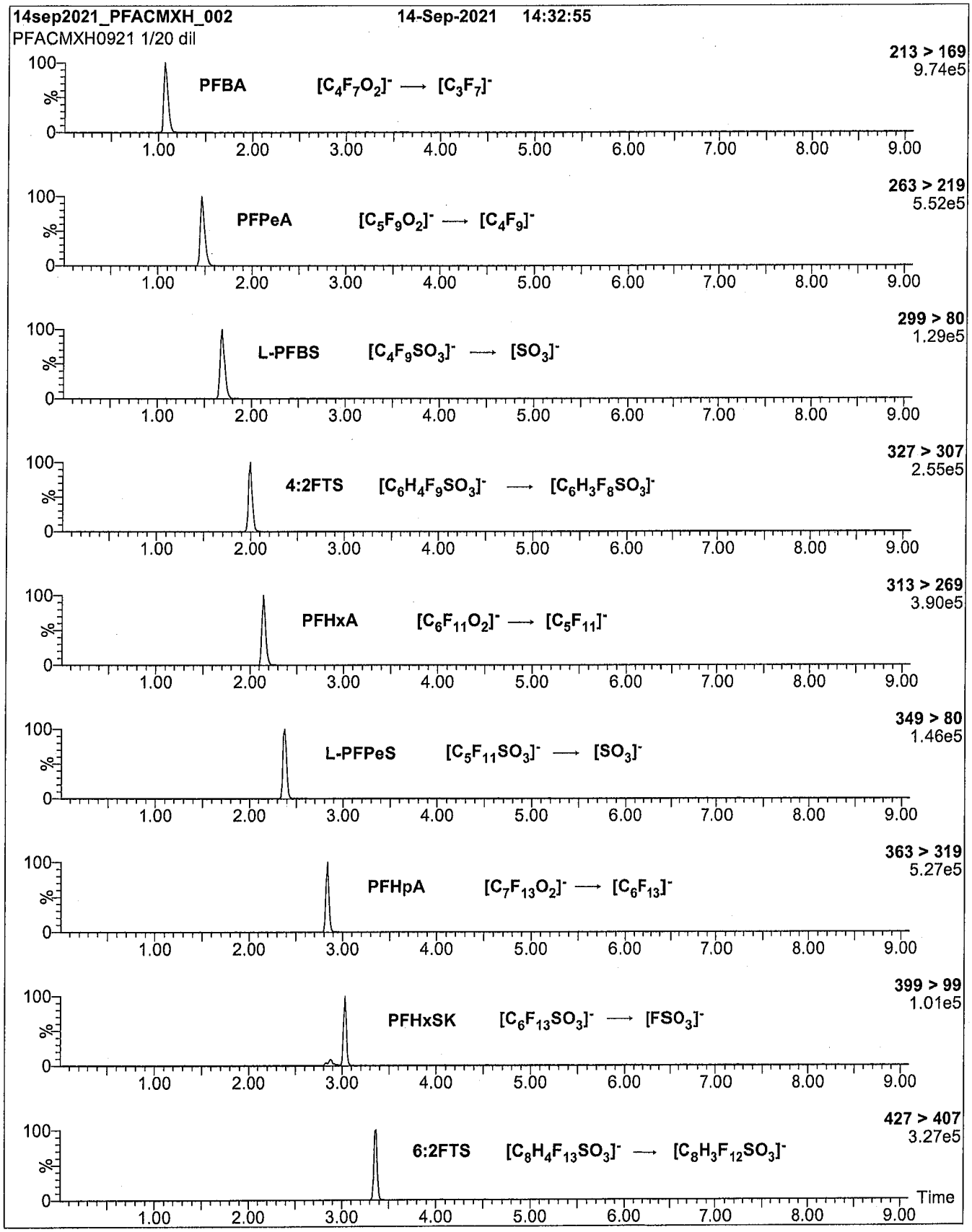


Figure 2: **PFAC-MXH; LC/MS/MS Data (Selected MRM Transitions)**

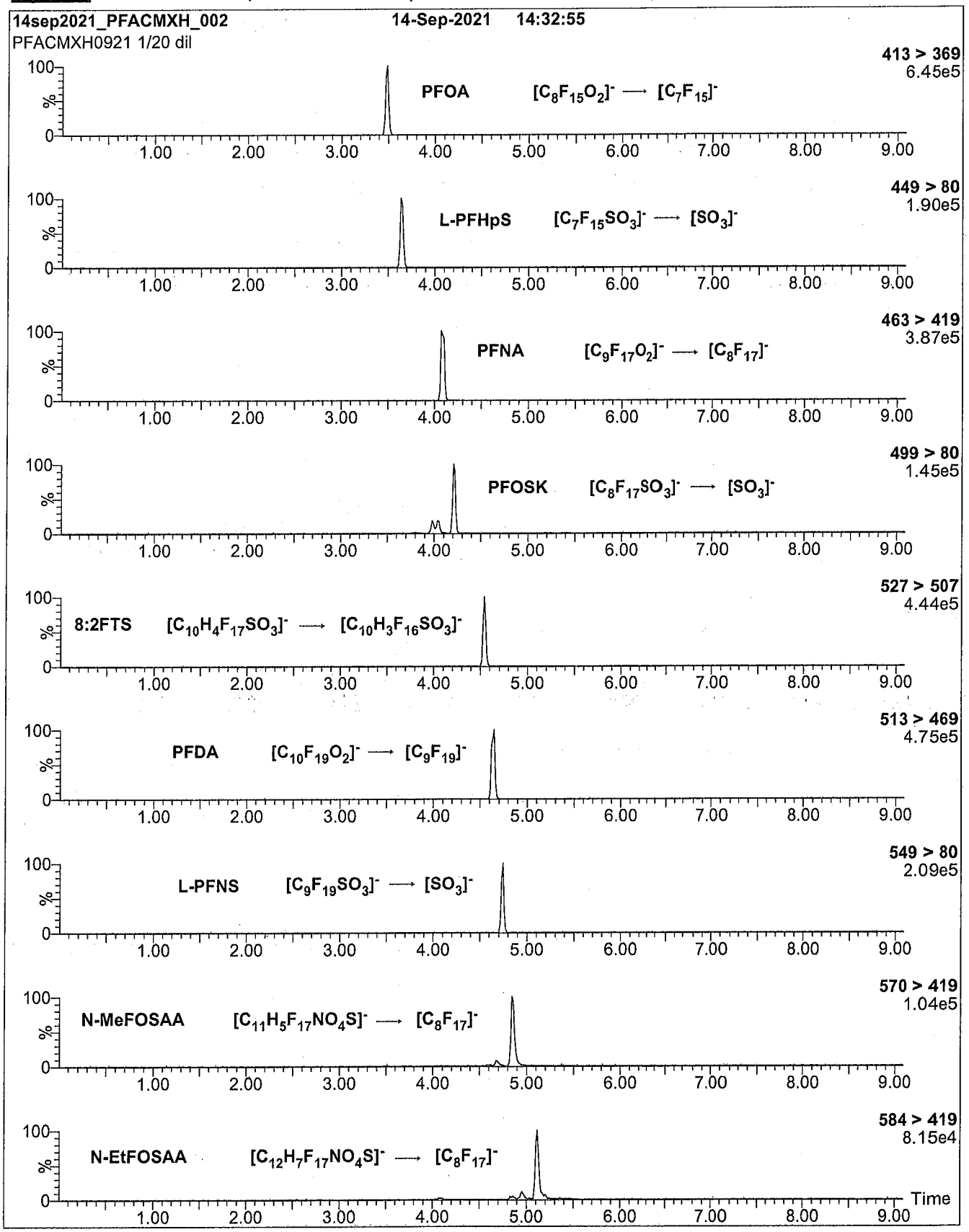
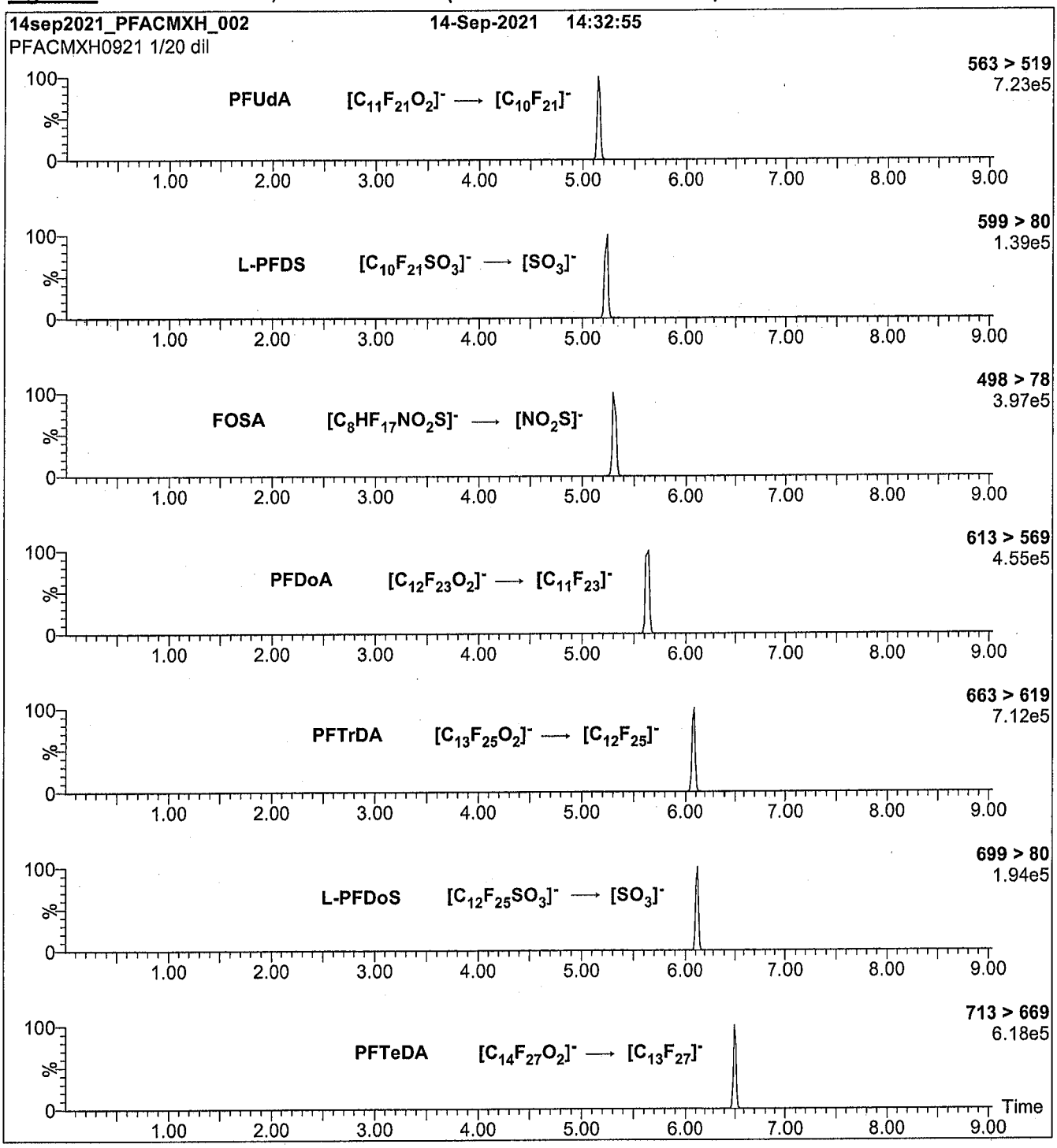


Figure 2: **PFAC-MXH; LC/MS/MS Data (Selected MRM Transitions)**



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%))**

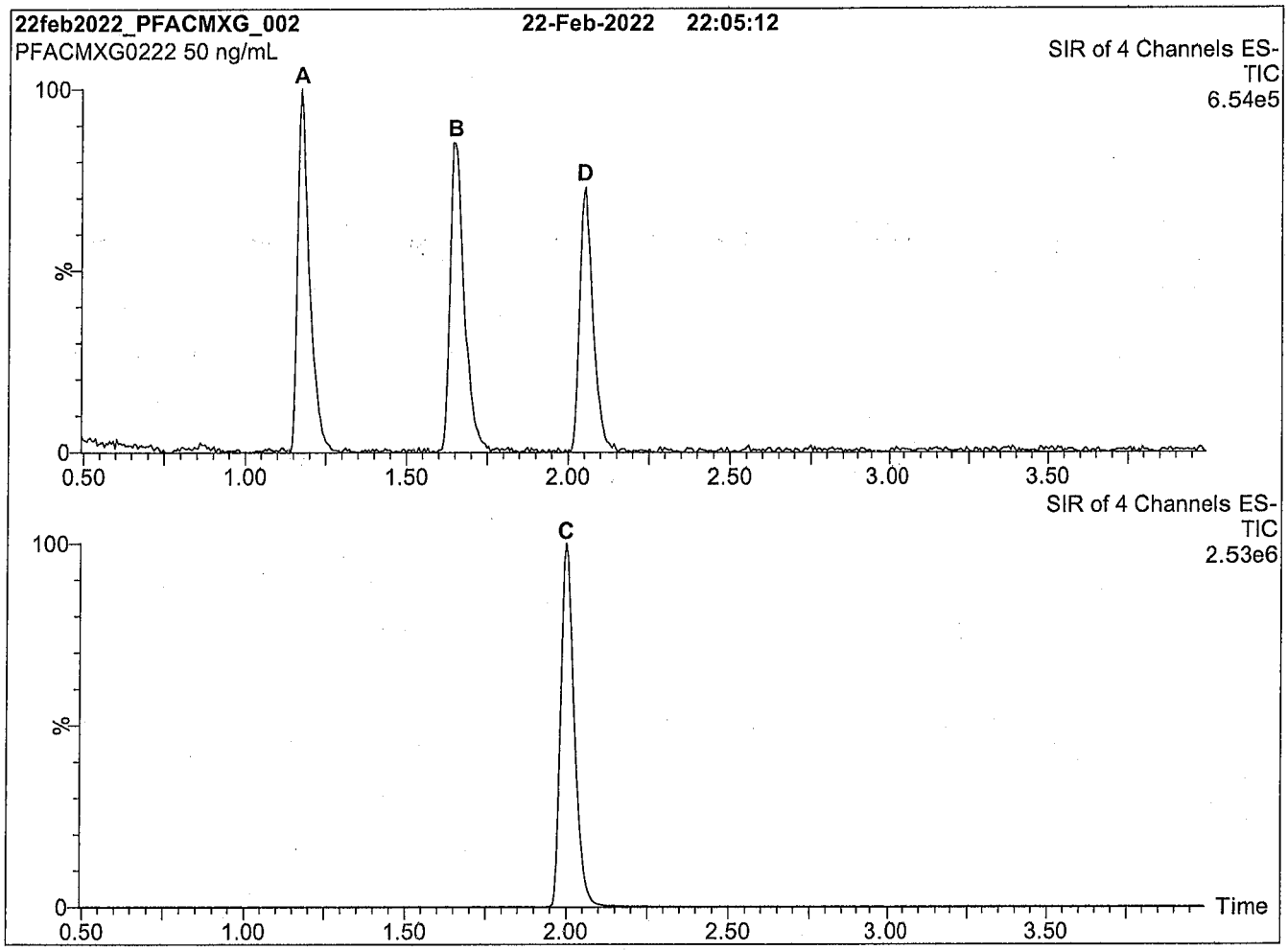
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the 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

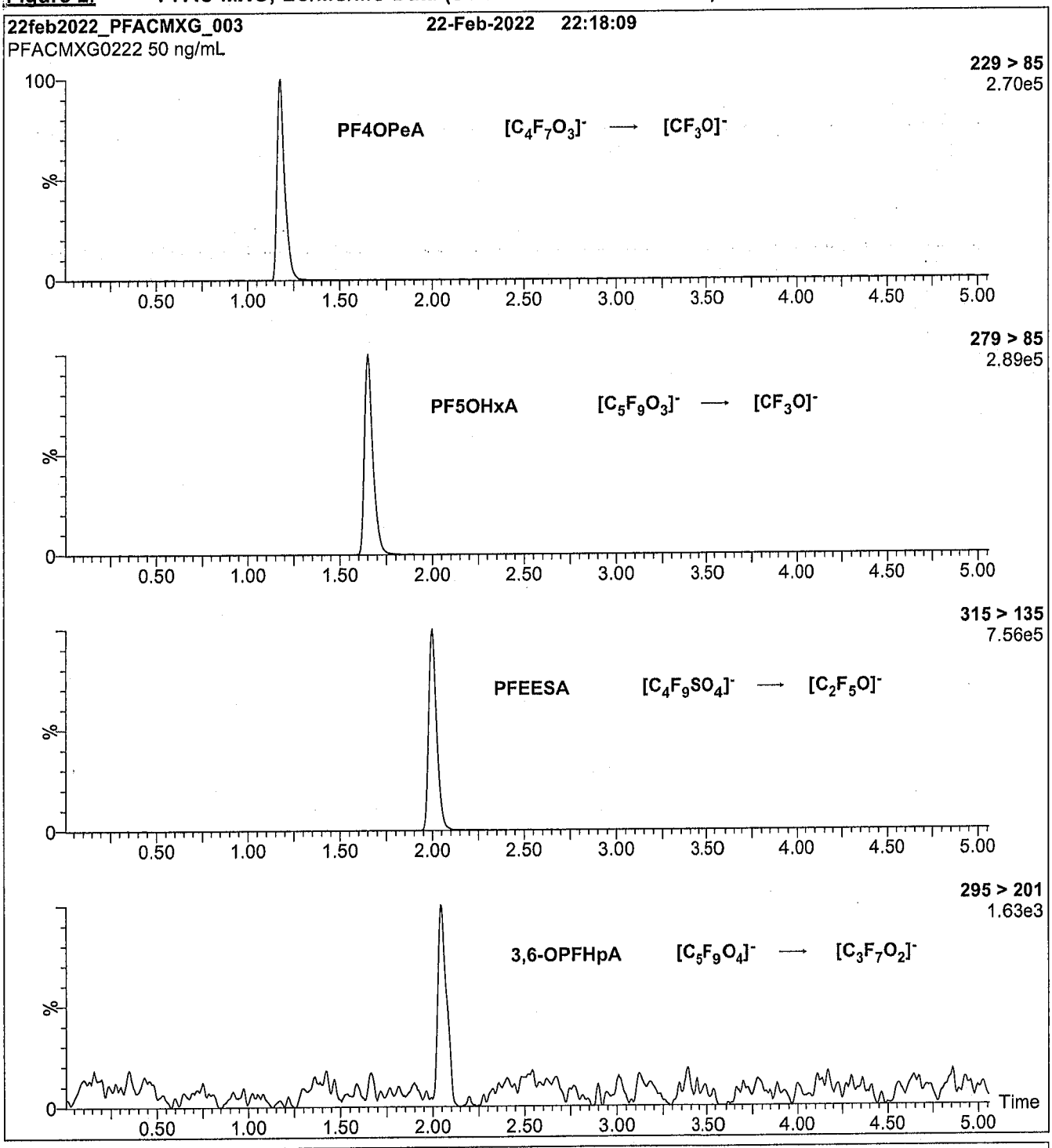
Flow: 300 µL/min

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:

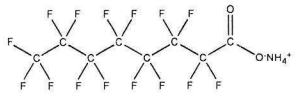
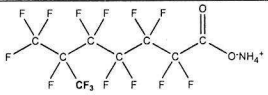
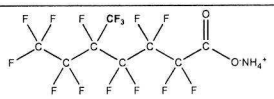
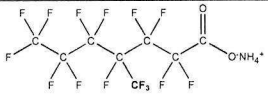
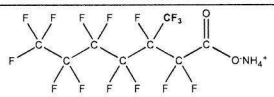
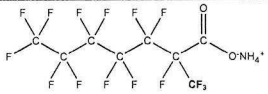
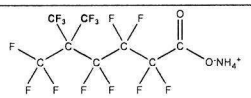
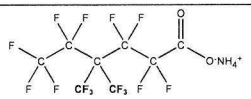
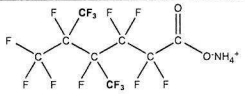
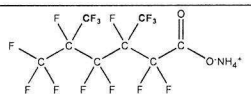
- See page 2 for further details.
- This technical mixture is >97% ammonium perfluorooctanoate (branched and linear isomers). The remaining 3% consists of common impurities such as the perfluoroheptanoic and perfluorohexanoic acids.
- It is recommended that this solution be used as a *qualitative or 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: _____ **Date:** 11/15/2022 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

22K0180

Description:	PFAS - MIX MXF 2 ug/mL	Expires:	01/11/2025
Standard Type:	Analyte Spike	Prepared:	01/10/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: PFACMXF0122)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	11/08/2022 13:30 by ABK

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

Analytical Standard Record

22K0181

Description:	PFAS - MIX MXG 2 ug/mL	Expires:	02/22/2027
Standard Type:	Analyte Spike	Prepared:	02/07/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: PFASMXG0222)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	11/08/2022 13:31 by ABK

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

22K0182

Description:	PFAS - MIX MXH 1 ug/mL	Expires:	08/08/2027
Standard Type:	Analyte Spike	Prepared:	08/05/2022
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: PFASMXH0822)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	11/08/2022 13:35 by ABK

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

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

23A0371

Description:	PFAS - MIX 1633 200ng/mL	Expires:	07/18/2023
Standard Type:	Analyte Spike	Prepared:	01/19/2023
Solvent:	MeOH 62244	Prepared By:	Dipti Gokal
Final Volume (mls):	5	Department:	PFAS
Vials:	1	Last Edit:	01/19/2023 14:21 by HGH

Analyte	Parent	CAS Number	Concentration	Units
3:3FTCA	21L0004	113507-82-7	0.8	ug/mL
5:3FTCA	21L0005	914637-49-3	0.8	ug/mL
7:3FTCA	21L0007	812-70-4	0.8	ug/mL
NMeFOSA	22J0301	31506-32-8	0.8	ug/mL
NEtFOSA	22J0302	4151-50-2	0.8	ug/mL
NMeFOSE	22J0303	24448-09-7	0.8	ug/mL
NEtFOSE	22J0304	1691-99-2	0.8	ug/mL
11CL-PF3OUDS	22K0180	763051-92-9	0.378	ug/mL
9CL-PF3ONS	22K0180	756426-58-1	0.374	ug/mL
ADONA	22K0180	919005-14-4	0.378	ug/mL
HFPO-DA	22K0180	13252-13-6	0.4	ug/mL
NFDHA	22K0181	151772-58-6	0.4	ug/mL
PFEESA	22K0181	113507-82-7	0.356	ug/mL
PFMBA	22K0181	863090-89-5	0.4	ug/mL
PFMPA	22K0181	377-73-1	0.4	ug/mL
4:2FTS	22K0182	757124-72-4	0.75	ug/mL
6:2FTS	22K0182	27619-97-2	0.76	ug/mL
8:2FTS	22K0182	39108-34-4	0.768	ug/mL
NEtFOSAA	22K0182	2991-50-6	0.2	ug/mL
NMeFOSAA	22K0182	2355-31-9	0.2	ug/mL
PFBA	22K0182	375-22-4	0.8	ug/mL
PFBS	22K0182	375-73-5	0.177	ug/mL
PFDA	22K0182	335-76-2	0.2	ug/mL
PFDOA	22K0182	307-55-1	0.2	ug/mL
PFDOS	22K0182	79780-39-5	0.194	ug/mL
PFDS	22K0182	335-77-3	0.193	ug/mL
PFHPA	22K0182	375-85-9	0.2	ug/mL
PFHPS	22K0182	375-92-8	0.191	ug/mL
PFHXA	22K0182	307-24-4	0.2	ug/mL
PFHXS	22K0182	355-46-4	0.183	ug/mL
PFNA	22K0182	375-95-1	0.2	ug/mL
PFNS	22K0182	68259-12-1	0.192	ug/mL
PFOA	22K0182	335-67-1	0.2	ug/mL
PFOS	22K0182	1763-23-1	0.186	ug/mL
PFOSA	22K0182	754-91-6	0.2	ug/mL
PFPEA	22K0182	2706-90-3	0.4	ug/mL
PFPES	22K0182	630402-22-1	0.188	ug/mL
PFTEDA	22K0182	376-06-7	0.2	ug/mL
PFTRDA	22K0182	72629-94-8	0.2	ug/mL
PFUnA	22K0182	2058-94-8	0.2	ug/mL

Reviewed By

Date

Analytical Standard Record

23A0371

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
21L0004	PFAS - SAS 3:3FTA 50ug/mL	12/07/2021	Wellington Laboratories	FPrPA1020	11/12/2025	10/31/2022 14:39	by DAG	0.08
21L0005	PFAS - SAS 5:3FTA 50ug/mL	12/07/2021	Wellington Laboratories	FPePA1120	11/11/2025	10/31/2022 14:41	by DAG	0.08
21L0007	PFAS - SAS 7:3FTA 50ug/mL	12/07/2021	Wellington Laboratories	FHpPA1020	11/12/2025	10/31/2022 14:42	by DAG	0.08
22J0301	br-NMeFOSA	08/23/2022	Wellington Laboratories	beNMeFOSA0822	08/23/2027	10/18/2022 13:37	by HGH	0.08
22J0302	br-NEtFOSA	10/07/2022	Wellington Laboratories	beNEtFOSA0922	10/07/2027	10/18/2022 13:38	by HGH	0.08
22J0303	br-NMeFOSE	10/07/2022	Wellington Laboratories	beNMeFOSE0922	10/07/2027	10/26/2022 10:16	by HGH	0.08
22J0304	br-NEtFOSE	10/07/2022	Wellington Laboratories	beNEtFOSE1022	10/07/2027	10/18/2022 13:43	by HGH	0.08
22K0180	PFAS - MIX MXF 2 ug/mL	01/10/2022	Wellington Laboratories	PFACMXF0122	01/11/2025	11/08/2022 16:39	by DAG	1
22K0181	PFAS - MIX MXG 2 ug/mL	02/07/2022	Wellington Laboratories	PFACMXG0222	02/22/2027	11/08/2022 16:39	by DAG	1
22K0182	PFAS - MIX MXH 1 ug/mL	08/05/2022	Wellington Laboratories	PFACMXH0822	08/08/2027	11/08/2022 16:38	by DAG	1

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) perfluorooctanesulfonamidoethanols, 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

Analytical Standard Record

23C0076

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 10:18 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

23C0078

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 10:19 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) perfluorooctanesulfonamidoethanols, 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