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:

January 09, 2023

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

RE: Red Hill AFFF Assessment Sampling
22L0170

Enclosed are the results of analyses for samples received by our laboratory on 12/27/2022. 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,

Greg Salata For Gregory Salata
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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Data Validatable Report

Analysis Case Narrative

PFAS: 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. Some extracted internal standards recovered outside of control limits in some samples. These samples were diluted and recovered in control, unless stated otherwise.

The extracted internal standard 13C2-4:2FTS recovered above the upper control limit in sample 01 - AF-RHMW17D-WGN01LF-2212W3.

A second container was re-extracted for each sample due to PFOA and PFOS contamination above ½ the LOQ in the method blank.

The analyte PFOS recovered above the upper control limit in BCA0031-BLK1. This blank contamination is much lower than the contamination in the original extraction batch, but still greater than ½ the LOQ. Insufficient sample volume was available for further re-extraction.

The extracted internal standard D5-NEtFOSA recovered below the lower control limit in in BCA0031-BS1. The associated native analytes recovered within control limits.

The analyte PFOS recovered above the upper control limit in BCA0031-MRL1. Insufficient sample volume was available for further re-extraction

The analytes NEtFOSSA and 11Cl-PF3OUdS recovered above the upper control limit in the continuting calibration SC00069-CCV1. NEtFOSSA and 11Cl-PF3OUdS were not detected in associated samples.

The analytes PFDoS recovered above the upper control limit in SC00069-CCV2. PFDoS was not detected in associated samples.

The analytes 9Cl-PF3ONS and 11Cl-PF3OUdS recovered above the upper control limit in the continuing calibration SC00069-CCV3. 9Cl-PF3ONS and 11Cl-PF3OUdS were not detected in the associated samples.

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
22L0170-01	AF-RHMW17D-WGN01LF-2212W3	Water	12/22/2022 17:40	12/27/2022
22L0170-02	AF-RHMW17-WGN01LF-2212W3	Water	12/22/2022 16:10	12/27/2022
22L0170-03	AF-RHMW04-WGN01LF-2212W3	Water	12/22/2022 14:05	12/27/2022
22L0170-04	AF-RHMW06-WGN01LF-2212W3	Water	12/22/2022 11:40	12/27/2022

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Containers Received

Lab ID	Container Type	Count	Preservation Check
22L0170-01			
	500mL P	2	
22L0170-02			
	500mL P	2	
22L0170-03			
	500mL P	2	
22L0170-04			
	500mL P	2	

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

AECOM Honolulu	Project: Red Hill AFFF Assessment Sampling	
1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Sample Results

Sample: AF-RHMW17D-WGN01LF-2212W3
22L0170-01 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.69	J	1.5	0.73	0.19	ng/L	01/06/23	1	EPA 1633	BCA0031
PFPEA	0.15	J	0.73	0.37	0.059	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHXA	0.29	J IR2,	0.37	0.18	0.050	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHPA	0.12	J	0.37	0.18	0.037	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOA	0.22	J	0.37	0.18	0.14	ng/L	01/06/23	1	EPA 1633	BCA0031
PFNA	0.18	U	0.37	0.18	0.075	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDA	0.18	U	0.37	0.18	0.093	ng/L	01/06/23	1	EPA 1633	BCA0031
PFUnA	0.18	U	0.37	0.18	0.15	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDOA	0.18	U	0.37	0.18	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
PFTRDA	0.27	U	0.37	0.27	0.19	ng/L	01/06/23	1	EPA 1633	BCA0031
PFTEDA	0.18	U	0.37	0.18	0.18	ng/L	01/06/23	1	EPA 1633	BCA0031
PFBS	0.10	J	0.37	0.18	0.034	ng/L	01/06/23	1	EPA 1633	BCA0031
PFPES	0.18	U	0.37	0.18	0.057	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHXS	0.18	U	0.37	0.18	0.029	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHPS	0.18	U	0.37	0.18	0.047	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOS	0.85		0.37	0.18	0.058	ng/L	01/06/23	1	EPA 1633	BCA0031
PFNS	0.18	U	0.37	0.18	0.11	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDS	0.18	U	0.37	0.18	0.14	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDOS	0.18	U	0.37	0.18	0.11	ng/L	01/06/23	1	EPA 1633	BCA0031
4:2FTS	0.73	U	1.5	0.73	0.27	ng/L	01/06/23	1	EPA 1633	BCA0031
6:2FTS	6.4		1.5	0.73	0.29	ng/L	01/06/23	1	EPA 1633	BCA0031
8:2FTS	0.73	U	1.5	0.73	0.075	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOSA	0.18	U	0.37	0.18	0.095	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSA	0.73	U	1.5	0.73	0.43	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSA	0.73	U	1.5	0.73	0.38	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSAA	0.18	U	0.37	0.18	0.097	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSAA	0.18	U	0.37	0.18	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSE	1.1	U	1.5	1.1	0.92	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSE	1.1	U	1.5	1.1	0.96	ng/L	01/06/23	1	EPA 1633	BCA0031
HFPO-DA	0.37	U	0.73	0.37	0.16	ng/L	01/06/23	1	EPA 1633	BCA0031
ADONA	0.37	U	0.73	0.37	0.11	ng/L	01/06/23	1	EPA 1633	BCA0031
PFEESA	0.37	U	0.73	0.37	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
PFMPA	0.37	U	0.73	0.37	0.049	ng/L	01/06/23	1	EPA 1633	BCA0031
PFMBA	0.37	U	0.73	0.37	0.083	ng/L	01/06/23	1	EPA 1633	BCA0031
NFDHA	0.37	U	0.73	0.37	0.27	ng/L	01/06/23	1	EPA 1633	BCA0031
9CL-PF3ONS	0.37	U	0.73	0.37	0.19	ng/L	01/06/23	1	EPA 1633	BCA0031
11CL-PF3OUDS	0.37	U	0.73	0.37	0.19	ng/L	01/06/23	1	EPA 1633	BCA0031
3:3FTCA	0.73	U	1.5	0.73	0.53	ng/L	01/06/23	1	EPA 1633	BCA0031
5:3FTCA	0.73	U	1.5	0.73	0.40	ng/L	01/06/23	1	EPA 1633	BCA0031
7:3FTCA	0.73	U	1.5	0.73	0.51	ng/L	01/06/23	1	EPA 1633	BCA0031
Surrogate: 13C4-PFBA	*87.8%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C5-PFPEA	*112%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C5-PFHXA	*110%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C4-PFHPA	*116%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOA	*107%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Sample Results
(Continued)

Sample: AF-RHMW17D-WGN01LF-2212W3 (Continued)
22L0170-01 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*107%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C6-PFDA	*90.5%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C7-PFUnA	*138%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-PFDOA	*126%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-PFTEDA	*118%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-PFBS	*130%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-PFHXS	*114%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOS	*107%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-4:2FTS	*190%*	*S2*		*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-4:2FTS	*180%*	*S2*		*20-150*			*01/06/23*	10	*EPA 1633*	*BCA0031*
Surrogate: 13C2-6:2FTS	*170%*	*S2*		*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-6:2FTS	*119%*			*20-150*			*01/06/23*	10	*EPA 1633*	*BCA0031*
Surrogate: 13C2-8:2FTS	*136%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOSA	*91.0%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D5-NETFOSA	*50.2%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D3-NMEFOSA	*59.2%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D3-NMEFOSAA	*65.3%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D5-NETFOSAA	*137%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D7-NMEFOSE	*59.4%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D9-NETFOSE	*66.4%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-HFPO-DA	*94.2%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Sample Results

(Continued)

Sample: AF-RHMW17-WGN01LF-2212W3
22L0170-02 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	2.8		1.5	0.77	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
PFPEA	5.0		0.77	0.38	0.062	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHXA	2.5		0.38	0.19	0.053	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHPA	0.83		0.38	0.19	0.039	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOA	0.39	MI4	0.38	0.19	0.15	ng/L	01/06/23	1	EPA 1633	BCA0031
PFNA	0.11 J		0.38	0.19	0.078	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDA	0.10 J		0.38	0.19	0.097	ng/L	01/06/23	1	EPA 1633	BCA0031
PFUnA	0.19 U		0.38	0.19	0.15	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDOA	0.19 U		0.38	0.19	0.11	ng/L	01/06/23	1	EPA 1633	BCA0031
PFTRDA	0.29 U		0.38	0.29	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
PFTEDA	0.19 U		0.38	0.19	0.19	ng/L	01/06/23	1	EPA 1633	BCA0031
PFBS	0.16 J		0.38	0.19	0.035	ng/L	01/06/23	1	EPA 1633	BCA0031
PFPES	0.19 U		0.38	0.19	0.060	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHXS	0.054 J		0.38	0.19	0.030	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHPS	0.19 U		0.38	0.19	0.049	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOS	0.71	MI4	0.38	0.19	0.061	ng/L	01/06/23	1	EPA 1633	BCA0031
PFNS	0.19 U		0.38	0.19	0.12	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDS	0.19 U		0.38	0.19	0.15	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDOS	0.19 U		0.38	0.19	0.12	ng/L	01/06/23	1	EPA 1633	BCA0031
4:2FTS	0.77 U		1.5	0.77	0.28	ng/L	01/06/23	1	EPA 1633	BCA0031
6:2FTS	8.6		1.5	0.77	0.30	ng/L	01/06/23	1	EPA 1633	BCA0031
8:2FTS	0.77 U		1.5	0.77	0.079	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOSA	0.11 J		0.38	0.19	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSA	0.77 U		1.5	0.77	0.45	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSA	0.77 U		1.5	0.77	0.40	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSAA	0.19 U		0.38	0.19	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSAA	0.19 U		0.38	0.19	0.11	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSE	1.2 U		1.5	1.2	0.97	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSE	1.2 U		1.5	1.2	1.0	ng/L	01/06/23	1	EPA 1633	BCA0031
HFPO-DA	0.38 U		0.77	0.38	0.17	ng/L	01/06/23	1	EPA 1633	BCA0031
ADONA	0.38 U		0.77	0.38	0.12	ng/L	01/06/23	1	EPA 1633	BCA0031
PFEESA	0.38 U		0.77	0.38	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
PFMPA	0.38 U		0.77	0.38	0.052	ng/L	01/06/23	1	EPA 1633	BCA0031
PFMBA	0.38 U		0.77	0.38	0.087	ng/L	01/06/23	1	EPA 1633	BCA0031
NFDHA	0.38 U		0.77	0.38	0.29	ng/L	01/06/23	1	EPA 1633	BCA0031
9CL-PF3ONS	0.38 U		0.77	0.38	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
11CL-PF3OUDS	0.38 U		0.77	0.38	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
3:3FTCA	0.77 U		1.5	0.77	0.55	ng/L	01/06/23	1	EPA 1633	BCA0031
5:3FTCA	0.77 U		1.5	0.77	0.42	ng/L	01/06/23	1	EPA 1633	BCA0031
7:3FTCA	0.77 U		1.5	0.77	0.53	ng/L	01/06/23	1	EPA 1633	BCA0031
Surrogate: 13C4-PFBA	*96.7%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C5-PFPEA	*109%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C5-PFHXA	*105%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C4-PFHPA	*103%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOA	*106%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Sample Results
(Continued)

Sample: AF-RHMW17-WGN01LF-2212W3 (Continued)
22L0170-02 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*114%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C6-PFDA	*114%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C7-PFUnA	*122%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-PFDOA	*94.0%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-PFTEDA	*75.1%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-PFBS	*118%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-PFHXS	*111%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOS	*105%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-4:2FTS	*175%*	*S2*		*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-4:2FTS	*144%*			*20-150*			*01/06/23*	10	*EPA 1633*	*BCA0031*
Surrogate: 13C2-6:2FTS	*121%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-8:2FTS	*134%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOSA	*81.5%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D5-NETFOSA	*52.3%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D3-NMEFOSA	*50.7%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D3-NMEFOSAA	*130%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D5-NETFOSAA	*126%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D7-NMEFOSE	*56.8%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D9-NETFOSE	*59.3%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-HFPO-DA	*112%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Sample Results

(Continued)

Sample: AF-RHMW04-WGN01LF-2212W3
22L0170-03 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.77 U		1.5	0.77	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
PFPEA	0.38 U		0.77	0.38	0.063	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHXA	0.19 U		0.38	0.19	0.053	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHPA	0.19 U		0.38	0.19	0.039	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOA	0.19 U		0.38	0.19	0.15	ng/L	01/06/23	1	EPA 1633	BCA0031
PFNA	0.19 U		0.38	0.19	0.079	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDA	0.19 U		0.38	0.19	0.098	ng/L	01/06/23	1	EPA 1633	BCA0031
PFUnA	0.19 U		0.38	0.19	0.15	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDOA	0.19 U		0.38	0.19	0.11	ng/L	01/06/23	1	EPA 1633	BCA0031
PFTRDA	0.29 U		0.38	0.29	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
PFTEDA	0.19 U		0.38	0.19	0.19	ng/L	01/06/23	1	EPA 1633	BCA0031
PFBS	0.19 U		0.38	0.19	0.035	ng/L	01/06/23	1	EPA 1633	BCA0031
PFPES	0.19 U		0.38	0.19	0.060	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHXS	0.19 U		0.38	0.19	0.030	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHPS	0.19 U		0.38	0.19	0.049	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOS	1.3	MI4	0.38	0.19	0.061	ng/L	01/06/23	1	EPA 1633	BCA0031
PFNS	0.19 U		0.38	0.19	0.12	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDS	0.19 U		0.38	0.19	0.15	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDOS	0.19 U		0.38	0.19	0.12	ng/L	01/06/23	1	EPA 1633	BCA0031
4:2FTS	0.77 U		1.5	0.77	0.28	ng/L	01/06/23	1	EPA 1633	BCA0031
6:2FTS	0.77 U		1.5	0.77	0.30	ng/L	01/06/23	1	EPA 1633	BCA0031
8:2FTS	0.77 U		1.5	0.77	0.079	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOSA	0.19 U		0.38	0.19	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSA	0.77 U		1.5	0.77	0.46	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSA	0.77 U		1.5	0.77	0.40	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSAA	0.19 U		0.38	0.19	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSAA	0.19 U		0.38	0.19	0.11	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSE	1.2 U		1.5	1.2	0.97	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSE	1.2 U		1.5	1.2	1.0	ng/L	01/06/23	1	EPA 1633	BCA0031
HFPO-DA	0.38 U		0.77	0.38	0.17	ng/L	01/06/23	1	EPA 1633	BCA0031
ADONA	0.38 U		0.77	0.38	0.12	ng/L	01/06/23	1	EPA 1633	BCA0031
PFEESA	0.38 U		0.77	0.38	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
PFMPA	0.38 U		0.77	0.38	0.052	ng/L	01/06/23	1	EPA 1633	BCA0031
PFMBA	0.38 U		0.77	0.38	0.087	ng/L	01/06/23	1	EPA 1633	BCA0031
NFDHA	0.38 U		0.77	0.38	0.29	ng/L	01/06/23	1	EPA 1633	BCA0031
9CL-PF3ONS	0.38 U		0.77	0.38	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
11CL-PF3OUDS	0.38 U		0.77	0.38	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
3:3FTCA	0.77 U		1.5	0.77	0.55	ng/L	01/06/23	1	EPA 1633	BCA0031
5:3FTCA	0.77 U		1.5	0.77	0.43	ng/L	01/06/23	1	EPA 1633	BCA0031
7:3FTCA	0.77 U		1.5	0.77	0.53	ng/L	01/06/23	1	EPA 1633	BCA0031
Surrogate: 13C4-PFBA	*99.0%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C5-PFPEA	*101%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C5-PFHXA	*109%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C4-PFHPA	*105%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOA	*105%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Sample Results

(Continued)

Sample: AF-RHMW04-WGN01LF-2212W3 (Continued)

22L0170-03 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*99.6%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C6-PFDA	*112%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C7-PFUnA	*123%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-PFDOA	*113%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-PFTEDA	*100%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-PFBS	*119%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-PFHXS	*107%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOS	*105%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-4:2FTS	*152%*	*S2*		*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-4:2FTS	*137%*			*20-150*			*01/06/23*	10	*EPA 1633*	*BCA0031*
Surrogate: 13C2-6:2FTS	*124%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-8:2FTS	*119%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOSA	*70.3%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D5-NETFOSA	*37.4%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D3-NMEFOSA	*39.0%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D3-NMEFOSAA	*134%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D5-NETFOSAA	*123%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D7-NMEFOSE	*36.6%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D9-NETFOSE	*42.9%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-HFPO-DA	*105%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Sample Results

(Continued)

Sample: AF-RHMW06-WGN01LF-2212W3
22L0170-04 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.79	J	1.5	0.76	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
PFPEA	1.1		0.76	0.38	0.062	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHXA	0.45		0.38	0.19	0.052	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHPA	1.2		0.38	0.19	0.039	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOA	0.15	J	0.38	0.19	0.15	ng/L	01/06/23	1	EPA 1633	BCA0031
PFNA	0.19	U	0.38	0.19	0.078	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDA	0.19	U	0.38	0.19	0.097	ng/L	01/06/23	1	EPA 1633	BCA0031
PFUnA	0.19	U	0.38	0.19	0.15	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDOA	0.19	U	0.38	0.19	0.11	ng/L	01/06/23	1	EPA 1633	BCA0031
PFTRDA	0.29	U	0.38	0.29	0.19	ng/L	01/06/23	1	EPA 1633	BCA0031
PFTEDA	0.19	U	0.38	0.19	0.19	ng/L	01/06/23	1	EPA 1633	BCA0031
PFBS	0.19	U	0.38	0.19	0.035	ng/L	01/06/23	1	EPA 1633	BCA0031
PFPES	0.19	U	0.38	0.19	0.060	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHXS	0.19	U	0.38	0.19	0.030	ng/L	01/06/23	1	EPA 1633	BCA0031
PFHPS	0.19	U	0.38	0.19	0.049	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOS	0.68		0.38	0.19	0.061	ng/L	01/06/23	1	EPA 1633	BCA0031
PFNS	0.19	U	0.38	0.19	0.12	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDS	0.19	U	0.38	0.19	0.14	ng/L	01/06/23	1	EPA 1633	BCA0031
PFDOS	0.19	U	0.38	0.19	0.12	ng/L	01/06/23	1	EPA 1633	BCA0031
4:2FTS	0.76	U	1.5	0.76	0.28	ng/L	01/06/23	1	EPA 1633	BCA0031
6:2FTS	0.91	J	1.5	0.76	0.30	ng/L	01/06/23	1	EPA 1633	BCA0031
8:2FTS	0.76	U	1.5	0.76	0.078	ng/L	01/06/23	1	EPA 1633	BCA0031
PFOSA	0.19	U	0.38	0.19	0.099	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSA	0.76	U	1.5	0.76	0.45	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSA	0.76	U	1.5	0.76	0.39	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSAA	0.19	U	0.38	0.19	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSAA	0.19	U	0.38	0.19	0.11	ng/L	01/06/23	1	EPA 1633	BCA0031
NMeFOSE	1.1	U	1.5	1.1	0.96	ng/L	01/06/23	1	EPA 1633	BCA0031
NEtFOSE	1.1	U	1.5	1.1	1.0	ng/L	01/06/23	1	EPA 1633	BCA0031
HFPO-DA	0.38	U	0.76	0.38	0.17	ng/L	01/06/23	1	EPA 1633	BCA0031
ADONA	0.38	U	0.76	0.38	0.12	ng/L	01/06/23	1	EPA 1633	BCA0031
PFEESA	0.38	U	0.76	0.38	0.10	ng/L	01/06/23	1	EPA 1633	BCA0031
PFMPA	0.38	U	0.76	0.38	0.051	ng/L	01/06/23	1	EPA 1633	BCA0031
PFMBA	0.38	U	0.76	0.38	0.087	ng/L	01/06/23	1	EPA 1633	BCA0031
NFDHA	0.38	U	0.76	0.38	0.29	ng/L	01/06/23	1	EPA 1633	BCA0031
9CL-PF3ONS	0.38	U	0.76	0.38	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
11CL-PF3OUDS	0.38	U	0.76	0.38	0.20	ng/L	01/06/23	1	EPA 1633	BCA0031
3:3FTCA	0.76	U	1.5	0.76	0.55	ng/L	01/06/23	1	EPA 1633	BCA0031
5:3FTCA	0.76	U	1.5	0.76	0.42	ng/L	01/06/23	1	EPA 1633	BCA0031
7:3FTCA	0.76	U	1.5	0.76	0.53	ng/L	01/06/23	1	EPA 1633	BCA0031
Surrogate: 13C4-PFBA	*93.9%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C5-PFPEA	*89.0%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C5-PFHXA	*98.8%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C4-PFHPA	*99.7%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOA	*106%*		*20-150*				*01/06/23*	1	*EPA 1633*	*BCA0031*

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Sample Results
(Continued)

Sample: AF-RHMW06-WGN01LF-2212W3 (Continued)
22L0170-04 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*100%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C6-PFDA	*102%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C7-PFUnA	*99.4%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-PFDOA	*89.1%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-PFTEDA	*82.7%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-PFBS	*132%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-PFHXS	*114%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOS	*103%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-4:2FTS	*156%*	*S2*		*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-4:2FTS	*139%*			*20-150*			*01/06/23*	10	*EPA 1633*	*BCA0031*
Surrogate: 13C2-6:2FTS	*153%*	*S2*		*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C2-6:2FTS	*111%*			*20-150*			*01/06/23*	10	*EPA 1633*	*BCA0031*
Surrogate: 13C2-8:2FTS	*127%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C8-PFOSA	*60.3%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D5-NETFOSA	*24.0%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D3-NMEFOSA	*28.6%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D3-NMEFOSAA	*102%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D5-NETFOSAA	*97.4%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D7-NMEFOSE	*36.8%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: D9-NETFOSE	*35.2%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*
Surrogate: 13C3-HFPO-DA	*97.9%*			*20-150*			*01/06/23*	1	*EPA 1633*	*BCA0031*

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Quality Control

Per- and Polyfluoroalkyl Substances

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BCA0031 - 1633										
Blank (BCA0031-BLK1)										
	ng/L									
PFBA	0.80 U	1.6	0.80	0.21						
PFPEA	0.40 U	0.80	0.40	0.065						
PFHXA	0.0550 J IR2,	0.40	0.20	0.055						
PFHPA	0.20 U	0.40	0.20	0.041						
PFOA	0.20 U	0.40	0.20	0.15						
PFNA	0.20 U	0.40	0.20	0.082						
PFDA	0.20 U	0.40	0.20	0.10						
PFUnA	0.20 U	0.40	0.20	0.16						
PFDOA	0.20 U	0.40	0.20	0.11						
PFTRDA	0.30 U	0.40	0.30	0.20						
PFTEDA	0.20 U	0.40	0.20	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	0.500 B, MI4	0.40	0.20	0.064						
PFNS	0.20 U	0.40	0.20	0.12						
PFDS	0.20 U	0.40	0.20	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	*32.9*				*32.0*		*103*	*20-150*		
13C5-PFPEA	*15.7*				*16.0*		*98.1*	*20-150*		
13C5-PFHXA	*7.83*				*8.00*		*97.9*	*20-150*		
13C4-PFHPA	*7.70*				*8.00*		*96.2*	*20-150*		
13C8-PFOA	*9.49*				*8.00*		*119*	*20-150*		

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BCA0031 - 1633 (Continued)										
Blank (BCA0031-BLK1)							Prepared: 01/04/23 07:38 Analyzed: 01/06/23 19:46			
	ng/L									
Surrogates										
13C9-PFNA	*4.21*				*4.00*		*105*	*20-150*		
13C6-PFDA	*4.93*				*4.00*		*123*	*20-150*		
13C7-PFUnA	*5.35*				*4.00*		*134*	*20-150*		
13C2-PFDOA	*4.50*				*4.00*		*112*	*20-150*		
13C2-PFTEDA	*4.40*				*4.00*		*110*	*20-150*		
13C3-PFBS	*8.49*				*8.00*		*106*	*20-150*		
13C3-PFHXS	*8.43*				*8.00*		*105*	*20-150*		
13C8-PFOS	*8.08*				*8.00*		*101*	*20-150*		
13C2-4:2FTS	*23.1*				*16.0*		*145*	*20-150*		
13C2-6:2FTS	*17.8*				*16.0*		*111*	*20-150*		
13C2-8:2FTS	*18.0*				*16.0*		*113*	*20-150*		
13C8-PFOSA	*4.50*				*8.00*		*56.2*	*20-150*		
D5-NETFOSA	*2.04*				*8.00*		*25.5*	*20-150*		
D3-NMEFOSA	*2.01*				*8.00*		*25.1*	*20-150*		
D3-NMEFOSAA	*18.1*				*16.0*		*113*	*20-150*		
D5-NETFOSAA	*20.0*				*16.0*		*125*	*20-150*		
D7-NMEFOSE	*28.4*				*80.0*		*35.4*	*20-150*		
D9-NETFOSE	*29.7*				*80.0*		*37.1*	*20-150*		
13C3-HFPO-DA	*31.8*				*32.0*		*99.4*	*20-150*		
LCS (BCA0031-BS1)							Prepared: 01/04/23 07:38 Analyzed: 01/06/23 19:59			
	ng/L									
PFBA	15.3				16.0		95.8	40-150		
PFPEA	7.66				8.00		95.8	40-150		
PFHXA	3.72				4.00		93.1	40-150		
PFHPA	3.67				4.00		91.8	40-150		
PFOA	4.14				4.00		103	40-150		
PFNA	3.99				4.00		99.6	40-150		
PFDA	3.95				4.00		98.7	40-150		
PFUnA	3.94				4.00		98.4	40-150		
PFDOA	4.08				4.00		102	40-150		
PFTRDA	3.60				4.00		90.1	40-150		
PFTEDA	3.50				4.00		87.4	40-150		
PFBS	3.40				3.54		96.1	40-150		
PFPES	3.69				3.76		98.2	40-150		
PFHXS	3.32				3.66		90.6	40-150		
PFHPS	3.32				3.82		87.0	40-150		
PFOS	3.91				3.72		105	40-150		
PFNS	3.16				3.84		82.3	40-150		
PFDS	3.62				3.86		93.9	40-150		
PFDOS	4.17				3.88		108	40-150		
4:2FTS	15.4				15.0		103	40-150		
6:2FTS	14.7				15.2		96.5	40-150		
8:2FTS	15.3				15.4		99.6	40-150		
PFOSA	4.20				4.00		105	40-150		

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BCA0031 - 1633 (Continued)										
LCS (BCA0031-BS1)						Prepared: 01/04/23 07:38 Analyzed: 01/06/23 19:59				
	ng/L									
NMeFOSA	18.1				16.0		113	40-150		
NEtFOSA	15.1				16.0		94.6	40-150		
NMeFOSAA	3.17				4.00		79.3	40-150		
NEtFOSAA	3.67				4.00		91.7	40-150		
NMeFOSE	15.6				16.0		97.4	40-150		
NEtFOSE	17.8				16.0		111	40-150		
HFPO-DA	7.09				8.00		88.6	40-150		
ADONA	7.56				7.56		100	40-150		
PFEESA	7.38				7.12		104	40-150		
PFMPA	6.86				8.00		85.7	40-150		
PFMBA	7.28				8.00		91.0	40-150		
NFDHA	6.86				8.00		85.8	40-150		
9CL-PF3ONS	7.44				7.48		99.5	40-150		
11CL-PF3OUDS	8.84				7.56		117	40-150		
3:3FTCA	11.3				16.0		70.9	40-150		
5:3FTCA	14.5				16.0		90.6	40-150		
7:3FTCA	13.7				16.0		85.8	40-150		
Surrogates										
13C4-PFBA	*32.4*				*32.0*		*101*	*20-150*		
13C5-PFPEA	*16.3*				*16.0*		*102*	*20-150*		
13C5-PFHXA	*7.94*				*8.00*		*99.3*	*20-150*		
13C4-PFHPA	*8.21*				*8.00*		*103*	*20-150*		
13C8-PFOA	*8.08*				*8.00*		*101*	*20-150*		
13C9-PFNA	*4.24*				*4.00*		*106*	*20-150*		
13C6-PFDA	*4.05*				*4.00*		*101*	*20-150*		
13C7-PFUnA	*3.54*				*4.00*		*88.5*	*20-150*		
13C2-PFDOA	*3.83*				*4.00*		*95.7*	*20-150*		
13C2-PFTEDA	*3.56*				*4.00*		*89.0*	*20-150*		
13C3-PFBS	*9.03*				*8.00*		*113*	*20-150*		
13C3-PFHXS	*8.25*				*8.00*		*103*	*20-150*		
13C8-PFOS	*8.00*				*8.00*		*100*	*20-150*		
13C2-4:2FTS	*21.8*				*16.0*		*136*	*20-150*		
13C2-6:2FTS	*20.0*				*16.0*		*125*	*20-150*		
13C2-8:2FTS	*18.9*				*16.0*		*118*	*20-150*		
13C8-PFOSA	*4.46*				*8.00*		*55.8*	*20-150*		
D5-NETFOSA	*1.52* S1				*8.00*		*19.0*	*20-150*		
D3-NMEFOSA	*1.65*				*8.00*		*20.7*	*20-150*		
D3-NMEFOSAA	*18.4*				*16.0*		*115*	*20-150*		
D5-NETFOSAA	*18.9*				*16.0*		*118*	*20-150*		
D7-NMEFOSE	*24.8*				*80.0*		*30.9*	*20-150*		
D9-NETFOSE	*21.6*				*80.0*		*27.0*	*20-150*		
13C3-HFPO-DA	*31.1*				*32.0*		*97.3*	*20-150*		

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BCA0031 - 1633 (Continued)										
MRL Check (BCA0031-MRL1)						Prepared: 01/04/23 07:38 Analyzed: 01/06/23 20:12				
	ng/L									
PFBA	1.56 J				1.60		97.3	40-150		
PFPEA	0.765 J				0.800		95.6	40-150		
PFHXA	0.425				0.400		106	40-150		
PFHPA	0.422				0.400		106	40-150		
PFOA	0.510				0.400		128	40-150		
PFNA	0.468				0.400		117	40-150		
PFDA	0.380 J				0.400		95.0	40-150		
PFUnA	0.437 IR1				0.400		109	40-150		
PFDOA	0.431 IR2				0.400		108	40-150		
PFTRDA	0.379 J IR2,				0.400		94.8	40-150		
PFTEDA	0.501				0.400		125	40-150		
PFBS	0.371 J				0.354		105	40-150		
PFPES	0.346 J				0.376		92.0	40-150		
PFHXS	0.371 J				0.366		101	40-150		
PFHPS	0.404				0.382		106	40-150		
PFOS	1.21 BS2				0.372		325	40-150		
PFNS	0.412				0.384		107	40-150		
PFDS	0.437				0.386		113	40-150		
PFDOS	0.413				0.388		106	40-150		
4:2FTS	1.40 J				1.50		93.4	40-150		
6:2FTS	1.67				1.52		110	40-150		
8:2FTS	1.50 J				1.54		97.8	40-150		
PFOSA	0.548				0.400		137	40-150		
NMeFOSA	1.40 J				1.60		87.7	40-150		
NEtFOSA	1.42 J				1.60		88.6	40-150		
NMeFOSAA	0.316 J IR2,				0.400		79.1	40-150		
NEtFOSAA	0.426				0.400		107	40-150		
NMeFOSE	1.46 J				1.60		91.4	40-150		
NEtFOSE	1.42 J				1.60		88.9	40-150		
HFPO-DA	0.752 J				0.800		94.0	40-150		
ADONA	0.750 J				0.756		99.3	40-150		
PFEESA	0.842				0.712		118	40-150		
PFMPA	0.800				0.800		100	40-150		
PFMBA	0.709 J				0.800		88.6	40-150		
NFDHA	0.707 J				0.800		88.3	40-150		
9CL-PF3ONS	0.673 J				0.748		90.0	40-150		
11CL-PF3OUDS	0.851				0.756		113	40-150		
3:3FTCA	1.48 J				1.60		92.2	40-150		
5:3FTCA	1.25 J				1.60		77.9	40-150		
7:3FTCA	1.40 J				1.60		87.3	40-150		
Surrogates										
13C4-PFBA	*32.1*				*32.0*		*100*	*20-150*		
13C5-PFPEA	*16.2*				*16.0*		*101*	*20-150*		
13C5-PFHXA	*8.52*				*8.00*		*107*	*20-150*		
13C4-PFHPA	*9.00*				*8.00*		*113*	*20-150*		
13C8-PFOA	*8.42*				*8.00*		*105*	*20-150*		

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Quality Control
(Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BCA0031 - 1633 (Continued)										
MRL Check (BCA0031-MRL1)						Prepared: 01/04/23 07:38 Analyzed: 01/06/23 20:12				
	ng/L									
Surrogates										
13C9-PFNA	*3.79*				*4.00*		*94.8*	*20-150*		
13C6-PFDA	*3.57*				*4.00*		*89.3*	*20-150*		
13C7-PFUnA	*4.21*				*4.00*		*105*	*20-150*		
13C2-PFDOA	*3.86*				*4.00*		*96.4*	*20-150*		
13C2-PFTEDA	*3.46*				*4.00*		*86.5*	*20-150*		
13C3-PFBS	*7.86*				*8.00*		*98.2*	*20-150*		
13C3-PFHXS	*9.25*				*8.00*		*116*	*20-150*		
13C8-PFOS	*8.44*				*8.00*		*105*	*20-150*		
13C2-4:2FTS	*24.0*				*16.0*		*150*	*20-150*		
13C2-6:2FTS	*18.4*				*16.0*		*115*	*20-150*		
13C2-8:2FTS	*22.1*				*16.0*		*138*	*20-150*		
13C8-PFOSA	*3.62*				*8.00*		*45.2*	*20-150*		
D5-NETFOSA	*2.07*				*8.00*		*25.9*	*20-150*		
D3-NMEFOSA	*2.28*				*8.00*		*28.5*	*20-150*		
D3-NMEFOSAA	*20.2*				*16.0*		*127*	*20-150*		
D5-NETFOSAA	*20.3*				*16.0*		*127*	*20-150*		
D7-NMEFOSE	*30.0*				*80.0*		*37.5*	*20-150*		
D9-NETFOSE	*29.0*				*80.0*		*36.3*	*20-150*		
13C3-HFPO-DA	*34.5*				*32.0*		*108*	*20-150*		

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	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 01/09/2023 16:57

Notes and Definitions

Item	Definition
B	Blank contamination
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
J	Estimated value
MI4	Manual integration, peak unsplit
S1	Surrogate recovered below the lower control limit
S2	Surrogate recovered above the upper control limit
U	Not detected
Dry	Sample results reported on a dry weight basis.
DL	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.

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

WORK ORDER

22L0170

Printed: 01/09/2023 4:58 pm

Project: **Red Hill AFFF Assessment Sampling**
Project Number: **Red Hill AFFF Assessment Sampling**
Project Manager: **Gregory Salata**
PO Number: **60697810**

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: 12/27/2022 02:45 PM
Date Due: 01/05/2023 (5.00 day TAT)

Logged In By: Megan Salata
Received By: Megan Salata

Analysis	Comments

22L0170 **Sample Receipt Log**

Default Cooler

Samples Received at: **1.7°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

2210170

APPL LABS

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. 04-221222-23F0104-APL

Report to: PLEASE PRINT
Company Name: AECOM
Phone: 808-954-4512 / 808-356-5311
Address: 1001 Bishop St ste1600
Honolulu, HI 96813
Fax:
Attn: Watson Tanji / Brant Landers
Email: watson.tanji@aecom.com/brant.landers@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): Aaron Oliver
Sampler (Signature):

Date Shipped:
Carrier:
Waybill No.:
Comments:

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-RHMW17D-WGN01LF-2212W3	RHMW17D	12/22/22	1740	HST	2	✓			✓

12/22/22

12/22/22

Shuttle Temperature: IRB 4.7/1.7°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:
AARON OLIVER	12/22/22	1510			12/26/22	1330	
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					12/27/22	1445	

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

Table of Contents

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

ELECTRONIC CHAIN OF CUSTODY RECORD

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

C.O.C. 03-221222-23F0104-APL

Report to: PLEASE PRINT

Company Name: AECOM Phone: 808-954-4512 / 808-356-5311

Address: 1001 Bishop St ste1600
Honolulu, HI 96813 Fax:

Attn: Watson Tanji / Brant Landers

Email: watson.tanji@aecom.com/brant.landers@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): Aaron Oliver

Sampler (Signature):

Date Shipped:

Carrier:

Waybill No.:

Comments:

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Sed.	Soil	Analysis Requested/Method Number: PFAS EPA Draft 1633
AF-RHMW17-WGN01LF-2212W3	RHMW-17	12/22/22	1640	HST	2	✓			✓

AO 12/22/22

AO 12/22/22

Shuttle 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: Aaron Oliver	Date 12/22/22	Time 1510	Received by:	Relinquished by:	Date 12/26/22	Time 1330	Received by:
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date 12/27/22	Time 1445	Received at lab by:

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

Table of Contents

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

ELECTRONIC CHAIN OF CUSTODY RECORD

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

C.O.C. 01-221222-23F0104-APL

PLEASE PRINT

Report to:
Company Name: AECOM
Phone: 808-954-4512 / 808-356-5311
Address: 1001 Bishop St ste1600
Honolulu, HI 96813
Fax:
Attn: Watson Tanji / Brant Landers
Email: watson.tanji@aecom.com/brant.landers@aecom.com

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

Project Name/Number: CTO N6274223F0104 / 60697810
Purchase Order Number:
Sampler (Print): Tianzhen Nie
Sampler (Signature):

Date Shipped:
Carrier:
Waybill No.:
Comments:

Sample Identification	Location	Date Collected	Time Collected	Time Zone	No. of Containers	Matrix: Aq	Sed.	Soil		Analysis Requested/Method Number: PFAS EPA Draft 1633
AF-RHMW04-WGN01LF-2212W3	RHMW04	12/22/22	1405	HST	2	✓				✓

MD 12/22/22

jn 12/22/22

Shuttle 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:
Tianzhen Nie	12/22/22	1510	Miranda Decarmo	Miranda Decarmo	12/23/22	1330	
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					12/27/22	1445	

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

Table of Contents

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

ELECTRONIC CHAIN OF CUSTODY RECORD

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

C.O.C. 02-221222-23F0104-APL

Report to: PLEASE PRINT

Company Name: AECOM
Phone: 808-954-4512 / 808-356-5311
Address: 1001 Bishop St ste1600
Honolulu, HI 96813
Fax:
Attn: Watson Tanji / Brant Landers
Email: watson.tanji@aecom.com/brant.landers@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): Tianzhen Ni
Sampler (Signature):

Date Shipped:
Carrier:
Waybill No.:
Comments:

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-RHMW06-WGN01LF-2212W3	RHMW06	12/22/22	1140	HST	2	✓			✓

MD 12/22/22

TN 12/22/22

Shuttle 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:
Tianzhen Ni	12/22/22	~~1140~~ 1510	Miranda DeFarmo	Miranda DeFarmo	12/26/22	1330	
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					12/27/22	1445	

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 IG Date 12/28/22

PFAS

SAMPLE DATA

FORM I
ANALYSIS DATA SHEET

AF-RHMW17D-WGN01LF-2212W3

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-01RE2	File ID:	S2023-01-06B (17)
Sampled:	12/22/22 17:40	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 21:16
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	547.31 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.69 J	1.5	0.73	0.19	
PFPEA	0.15 J	0.73	0.37	0.059	
PFHXA	0.29 J	0.37	0.18	0.050	IR2,
PFHPA	0.12 J	0.37	0.18	0.037	
PFOA	0.22 J	0.37	0.18	0.14	
PFNA	0.18 U	0.37	0.18	0.075	
PFDA	0.18 U	0.37	0.18	0.093	
PFUnA	0.18 U	0.37	0.18	0.15	
PFDOA	0.18 U	0.37	0.18	0.10	
PFTRDA	0.27 U	0.37	0.27	0.19	
PFTEDA	0.18 U	0.37	0.18	0.18	
PFBS	0.10 J	0.37	0.18	0.034	
PFPES	0.18 U	0.37	0.18	0.057	
PFHXS	0.18 U	0.37	0.18	0.029	
PFHPS	0.18 U	0.37	0.18	0.047	
PFOS	0.85	0.37	0.18	0.058	
PFNS	0.18 U	0.37	0.18	0.11	
PFDS	0.18 U	0.37	0.18	0.14	
PFDOS	0.18 U	0.37	0.18	0.11	
4:2FTS	0.73 U	1.5	0.73	0.27	
6:2FTS	6.4	1.5	0.73	0.29	
8:2FTS	0.73 U	1.5	0.73	0.075	
PFOSA	0.18 U	0.37	0.18	0.095	
NMeFOSA	0.73 U	1.5	0.73	0.43	
NEtFOSA	0.73 U	1.5	0.73	0.38	
NMeFOSAA	0.18 U	0.37	0.18	0.097	
NEtFOSAA	0.18 U	0.37	0.18	0.10	
NMeFOSE	1.1 U	1.5	1.1	0.92	
NEtFOSE	1.1 U	1.5	1.1	0.96	
HFPO-DA	0.37 U	0.73	0.37	0.16	

FORM I
ANALYSIS DATA SHEET

AF-RHMW17D-WGN01LF-2212W3

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-01RE2	File ID:	S2023-01-06B (17)
Sampled:	12/22/22 17:40	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 21:16
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	547.31 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

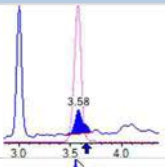
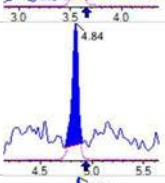
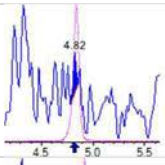
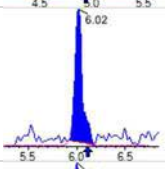
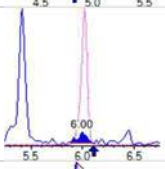
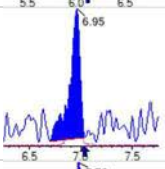
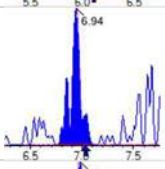
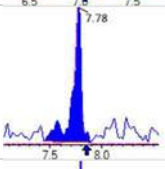
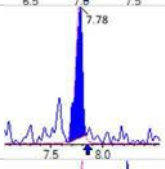
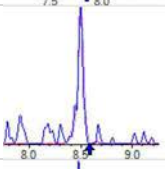
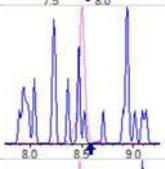
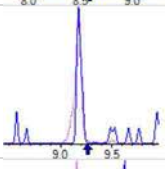
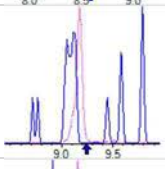
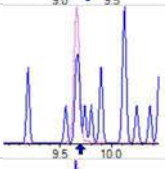
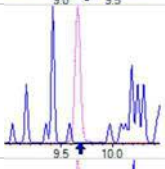
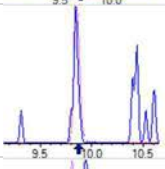
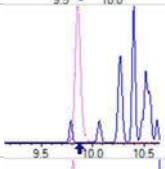
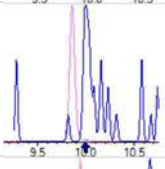
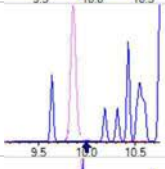
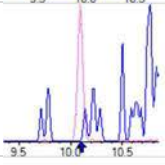
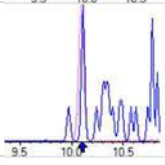
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.37 U	0.73	0.37	0.11	
PFEESA	0.37 U	0.73	0.37	0.10	
PFMPA	0.37 U	0.73	0.37	0.049	
PFMBA	0.37 U	0.73	0.37	0.083	
NFDHA	0.37 U	0.73	0.37	0.27	
9CL-PF3ONS	0.37 U	0.73	0.37	0.19	
11CL-PF3OUDS	0.37 U	0.73	0.37	0.19	
3:3FTCA	0.73 U	1.5	0.73	0.53	
5:3FTCA	0.73 U	1.5	0.73	0.40	
7:3FTCA	0.73 U	1.5	0.73	0.51	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (17)
Acquired: 2023/01/06 - 21:16

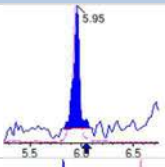
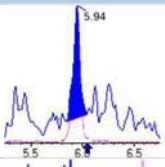
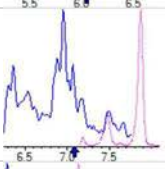
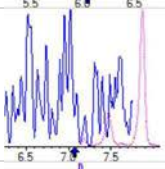
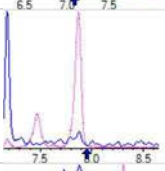
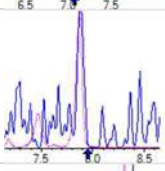
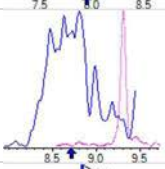
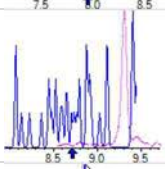
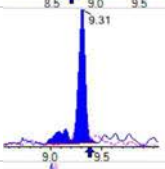
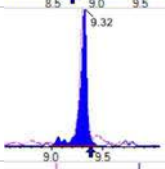
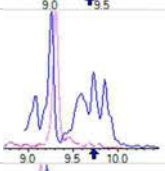
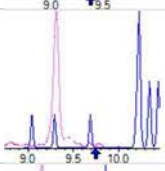
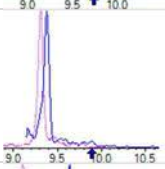
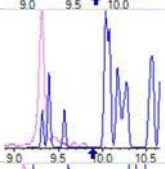
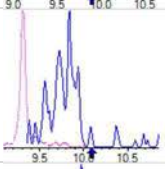
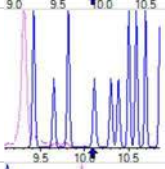
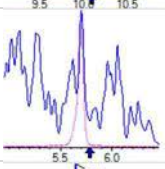
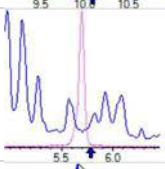
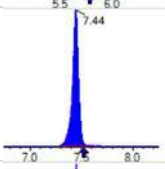
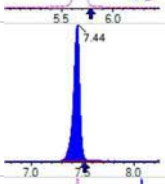
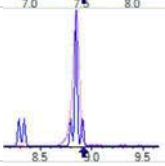
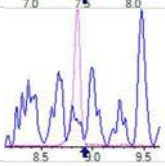
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 17102	(3.58 , 1.00) (0.01 , N/A , 0.0)	26.1	N/A 0.0 0.0	0.1902	N/A			
PFPeA	(263.0 / 219.0) 8952 (263.0 / 69.0) 121	(4.84 , 1.00) (0.00 , N/A , 1.1)	34.7 3.5	0.0135 111.2 108.7	0.0403	N/A			
PFHxA	(313.0 / 269.0) 22944 (313.0 / 119.0) 3515	(6.02 , 1.00) (0.00 , N/A , 0.8)	49.2 8.7	0.1532 153.5 147.1	0.0781	N/A			IR2,
PFHpA	(363.0 / 319.0) 9618 (363.0 / 169.0) 3457	(6.95 , 1.00) (0.00 , N/A , 0.7)	26.8 37.1	0.3594 120.6 121.1	0.0332	N/A			
PFOA	(413.0 / 369.0) 18561 (413.0 / 169.0) 5889	(7.78 , 1.00) (0.01 , N/A , 0.0)	62.0 28.2	0.3173 95.8 96.5	0.0602	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.: 22L0170-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (17)
Acquired: 2023/01/06 - 21:16

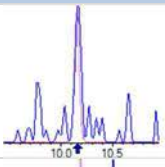
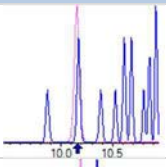
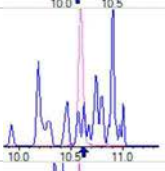
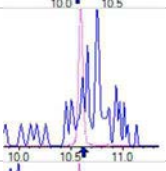
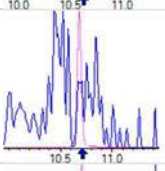
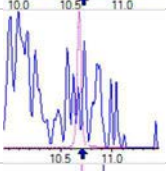
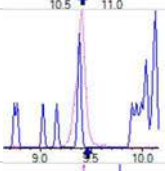
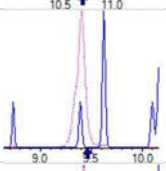
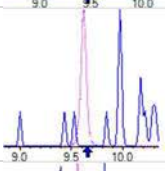
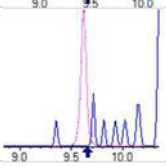
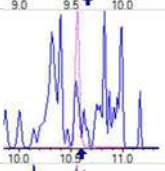
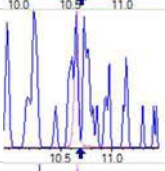
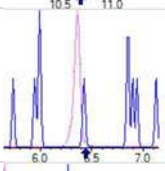
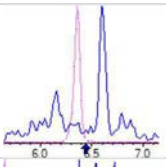
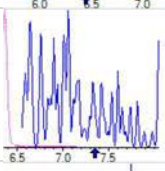
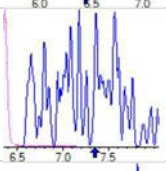
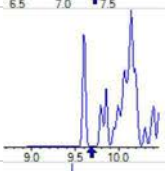
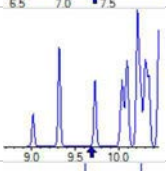
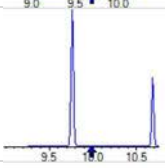
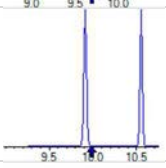
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 15507 (299.0 / 99.0) 9427	(5.95 , 1.00) (0.01 , N/A , 0.7)	39.9 20.8	0.6079 93.3 96.6	0.0275	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) 192540 (499.0 / 99.0) 52241	(9.31 , 1.00) (0.00 , N/A , -0.8)	114.4 221.1	0.2713 120.8 113.5	0.2329	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) 772776 (427.0 / 81.0) 571868	(7.44 , 1.00) (0.00 , N/A , -0.1)	581.6 466.5	0.7400 101.9 94.4	1.7380	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.: 22L0170-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (17)
Acquired: 2023/01/06 - 21:16

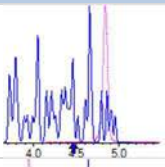
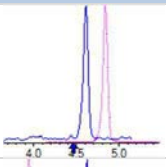
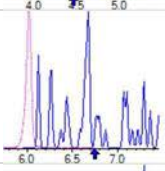
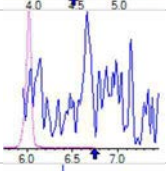
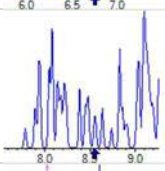
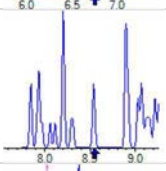
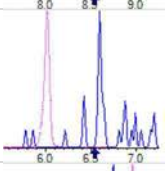
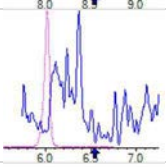
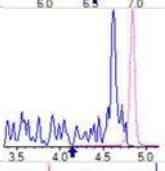
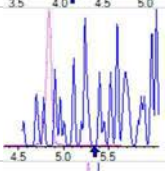
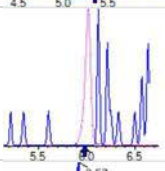
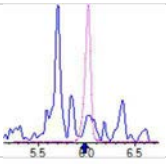
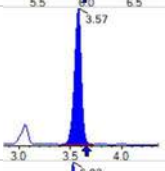
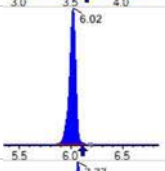
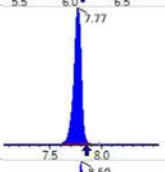
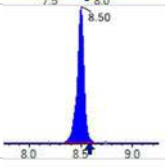
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: 22L0170-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (17)
Acquired: 2023/01/06 - 21:16

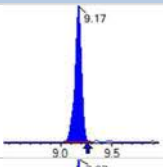
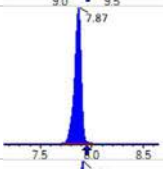
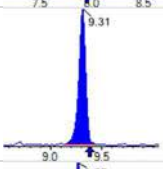
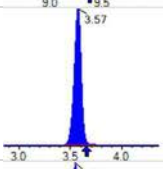
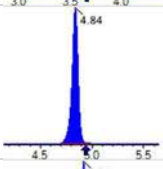
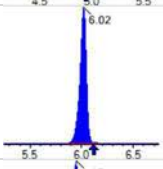
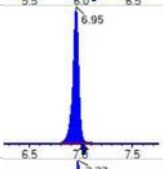
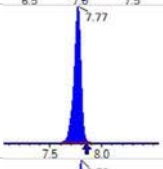
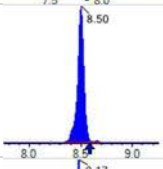
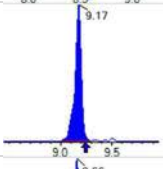
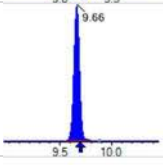
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 112065	(3.57 , N/A) (N/A , -0.08 , N/A)	154.5	N/A	0.6630 [1.0000]	66.3% { 68.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 260782	(6.02 , N/A) (N/A , -0.09 , N/A)	522.2	N/A	0.8731 [1.0000]	87.3% { 86.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 275977	(7.77 , N/A) (N/A , -0.08 , N/A)	589.6	N/A	0.8342 [1.0000]	83.4% { 99.3% }			
13C5_PFNA_IIS	(468.0 / 423.0) 215641	(8.50 , N/A) (N/A , -0.08 , N/A)	563.5	N/A	0.7735 [1.0000]	77.3% { 85.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (17)
Acquired: 2023/01/06 - 21:16

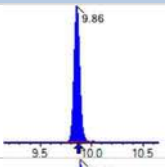
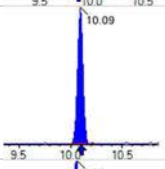
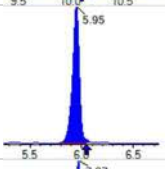
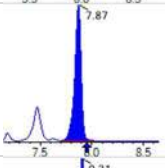
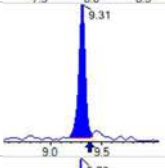
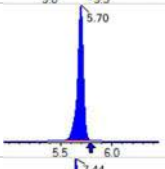
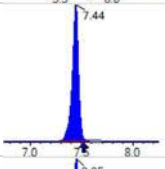
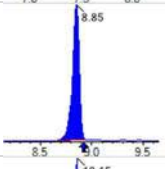
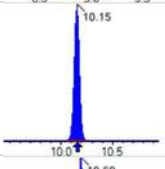
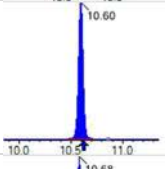
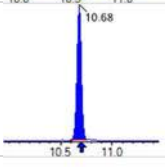
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 213795	(9.17 , N/A) (N/A , -0.08 , N/A)	314.9	N/A	0.6837 [1.0000]	68.4% { 75.3% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 493720	(7.87 , N/A) (N/A , -0.08 , N/A)	572.4	N/A	0.8407 [1.0000]	84.1% { 88.3% }			
13C4_PFOS_IIS	(503.0 / 79.9) 446869	(9.31 , N/A) (N/A , -0.08 , N/A)	209.2	N/A	0.7570 [1.0000]	75.7% { 93.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 783929	(3.57 , N/A) (N/A , -0.08 , N/A)	790.4	N/A	7.0229 [8.0000]	87.8% { 62.8% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 942728	(4.84 , N/A) (N/A , -0.10 , N/A)	622.4	N/A	4.4685 [4.0000]	111.7% { 112.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 598102	(6.02 , N/A) (N/A , -0.09 , N/A)	517.9	N/A	2.1908 [2.0000]	109.5% { 100.5% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 565690	(6.95 , N/A) (N/A , -0.08 , N/A)	507.2	N/A	2.3138 [2.0000]	115.7% { 110.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 584674	(7.77 , N/A) (N/A , -0.08 , N/A)	629.4	N/A	2.1383 [2.0000]	106.9% { 98.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 229779	(8.50 , N/A) (N/A , -0.08 , N/A)	425.3	N/A	1.0732 [1.0000]	107.3% { 95.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 227089	(9.17 , N/A) (N/A , -0.07 , N/A)	267.7	N/A	0.9053 [1.0000]	90.5% { 63.2% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 457189	(9.66 , N/A) (N/A , -0.03 , N/A)	329.3	N/A	1.3778 [1.0000]	137.8% { 112.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (17)
Acquired: 2023/01/06 - 21:16

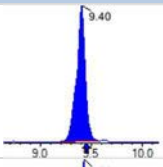
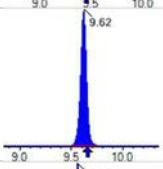
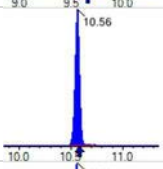
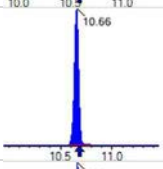
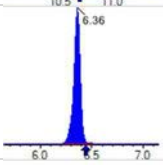
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 423349	(9.86 , N/A) (N/A , -0.01 , N/A)	370.8	N/A	1.2596 [1.0000]	126.0% { 100.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 283494	(10.09 , N/A) (N/A , -0.01 , N/A)	656.3	N/A	1.1789 [1.0000]	117.9% { 96.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1783040	(5.95 , N/A) (N/A , -0.09 , N/A)	442.3	N/A	2.5949 [2.0000]	129.7% { 111.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 927941	(7.87 , N/A) (N/A , -0.08 , N/A)	106.7	N/A	2.2710 [2.0000]	113.5% { 92.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1179444	(9.31 , N/A) (N/A , -0.08 , N/A)	154.1	N/A	2.1493 [2.0000]	107.5% { 97.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 882718	(5.70 , N/A) (N/A , -0.09 , N/A)	460.3	N/A	7.5801 [4.0000]	189.5% { 164.1% }			S2,
13C2_6:2FTS_EIS	(429.0 / 81.0) 1106645	(7.44 , N/A) (N/A , -0.08 , N/A)	485.0	N/A	6.8141 [4.0000]	170.4% { 175.2% }			S2,
13C2_8:2FTS_EIS	(529.0 / 81.0) 902127	(8.85 , N/A) (N/A , -0.07 , N/A)	450.4	N/A	5.4419 [4.0000]	136.0% { 133.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1112667	(10.15 , N/A) (N/A , -0.01 , N/A)	959.2	N/A	1.8193 [2.0000]	91.0% { 74.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 160119	(10.60 , N/A) (N/A , -0.02 , N/A)	521.9	N/A	1.1849 [2.0000]	59.2% { 57.4% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 123416	(10.68 , N/A) (N/A , -0.02 , N/A)	48.8	N/A	1.0039 [2.0000]	50.2% { 49.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-01RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (17)
Acquired: 2023/01/06 - 21:16

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 497624	(9.40 , N/A) (N/A , -0.05 , N/A)	266.9	N/A	2.6136 [4.0000]	65.3% { 55.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 903122	(9.62 , N/A) (N/A , -0.04 , N/A)	146.0	N/A	5.4674 [4.0000]	136.7% { 124.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 258682	(10.56 , N/A) (N/A , -0.02 , N/A)	757.3	N/A	11.8824 [20.0000]	59.4% { 48.2% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 131889	(10.66 , N/A) (N/A , -0.02 , N/A)	608.2	N/A	13.2898 [20.0000]	66.4% { 64.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1133743	(6.36 , N/A) (N/A , -0.08 , N/A)	674.1	N/A	7.5375 [8.0000]	94.2% { 91.5% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW17D-WGN01LF-2212W3

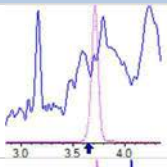
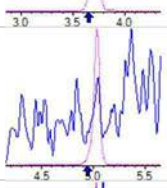
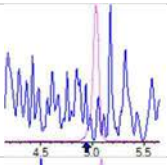
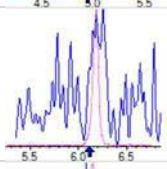
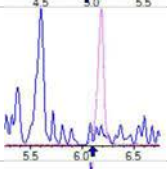
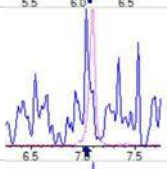
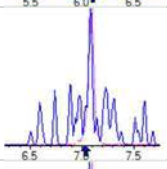
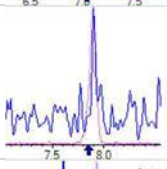
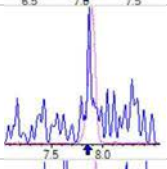
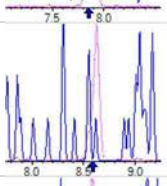
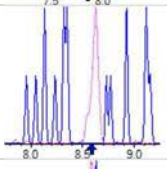
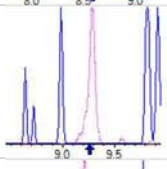
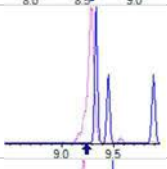
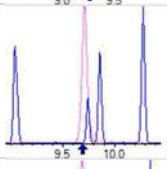
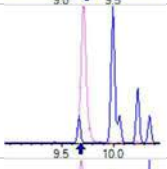
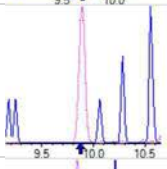
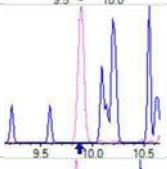
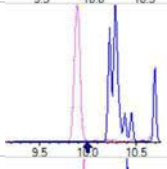
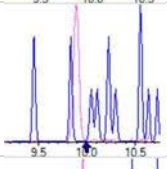
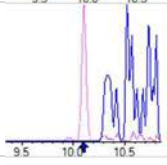
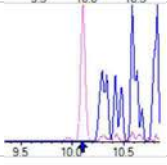
Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-01RE3	File ID:	S2023-01-06B (18)
Sampled:	12/22/22 17:40	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 21:29
Solids:		Preparation:	1633	Dilution:	10
Initial/Final:	547.31 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-01RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (18)
Acquired: 2023/01/06 - 21:29

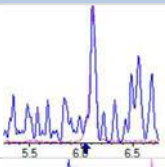
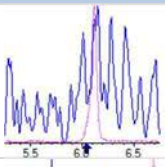
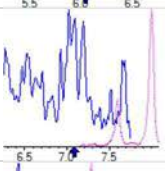
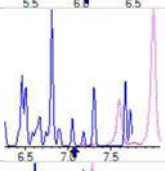
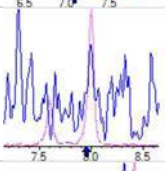
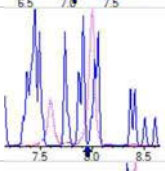
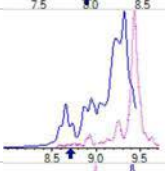
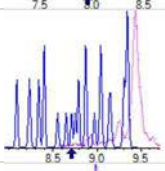
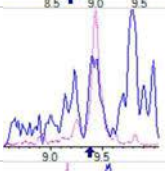
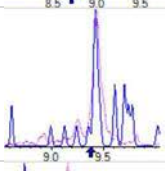
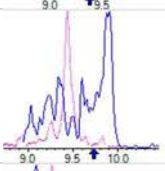
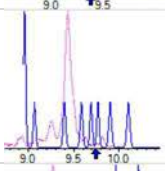
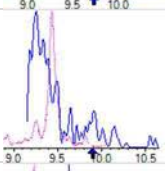
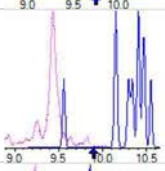
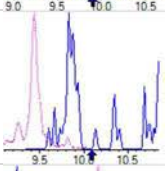
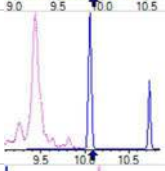
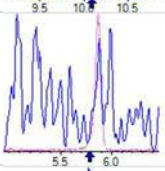
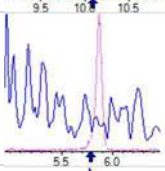
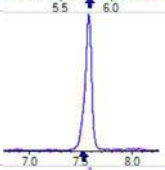
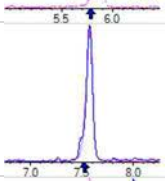
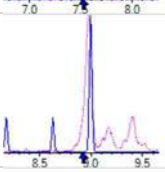
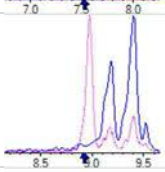
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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.: 22L0170-01RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (18)
Acquired: 2023/01/06 - 21:29

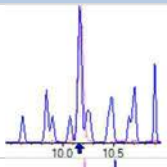
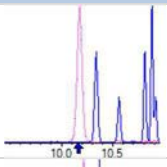
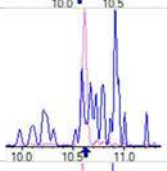
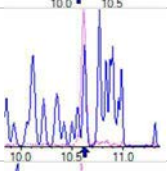
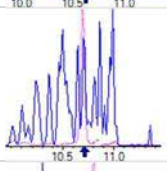
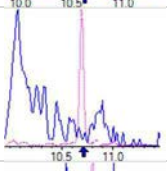
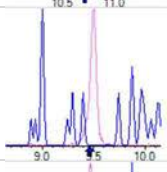
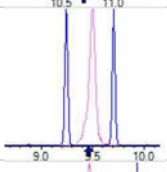
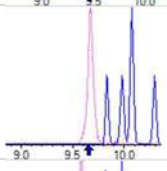
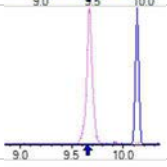
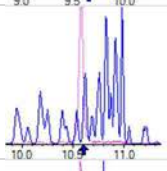
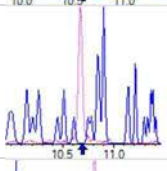
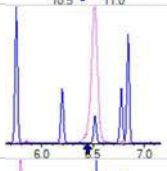
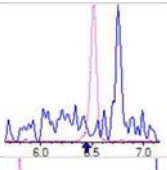
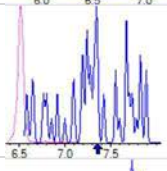
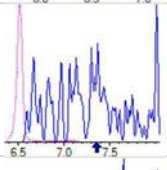
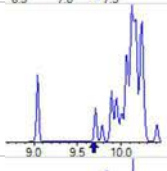
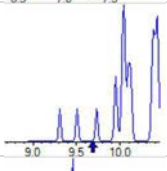
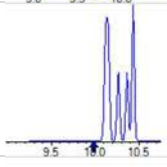
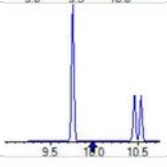
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: 22L0170-01RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (18)
Acquired: 2023/01/06 - 21:29

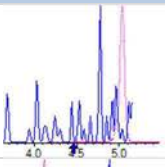
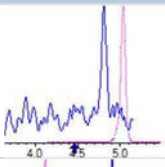
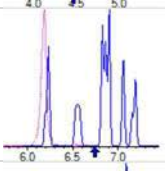
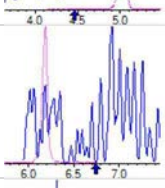
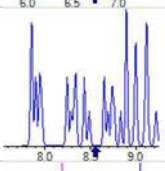
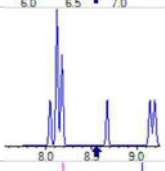
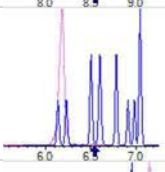
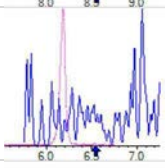
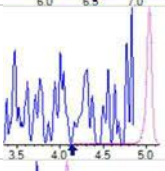
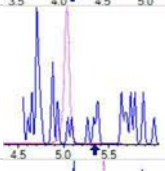
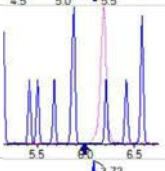
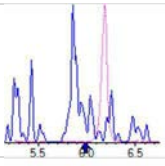
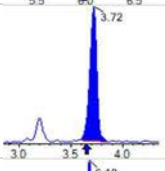
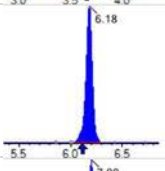
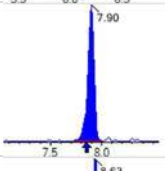
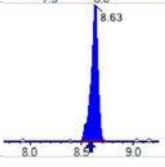
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: 22L0170-01RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (18)
Acquired: 2023/01/06 - 21:29

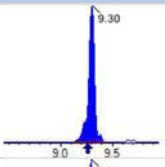
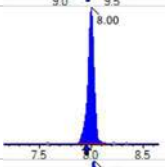
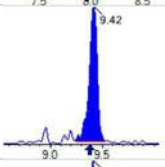
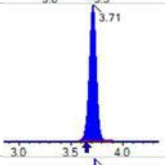
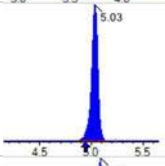
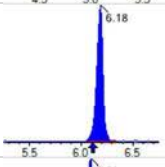
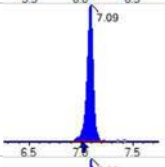
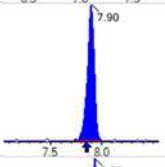
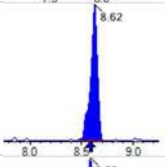
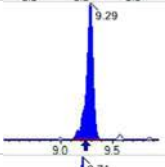
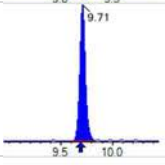
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 16357	(3.72 , N/A) (N/A , 0.07 , N/A)	127.0	N/A	0.9677 [1.0000]	96.8% { 9.9% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 32633	(6.18 , N/A) (N/A , 0.08 , N/A)	333.2	N/A	1.0926 [1.0000]	109.3% { 10.8% }			
13C4_PFOA_IIS	(417.0 / 372.0) 24484	(7.90 , N/A) (N/A , 0.05 , N/A)	225.6	N/A	0.7401 [1.0000]	74.0% { 8.8% }			
13C5_PFNA_IIS	(468.0 / 423.0) 25289	(8.63 , N/A) (N/A , 0.05 , N/A)	253.5	N/A	0.9071 [1.0000]	90.7% { 10.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-01RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (18)
Acquired: 2023/01/06 - 21:29

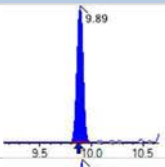
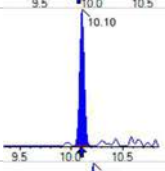
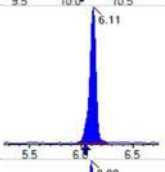
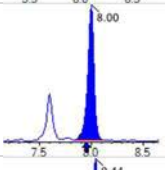
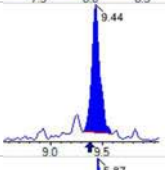
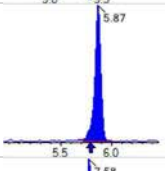
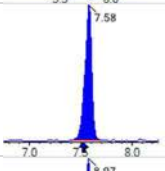
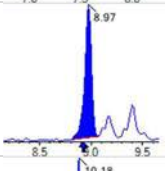
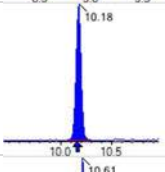
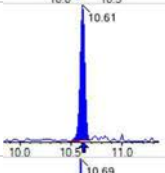
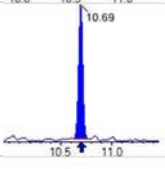
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 25534	(9.30 , N/A) (N/A , 0.05 , N/A)	230.5	N/A	0.8166 [1.0000]	81.7% { 9.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 55137	(8.00 , N/A) (N/A , 0.05 , N/A)	461.3	N/A	0.9388 [1.0000]	93.9% { 9.9% }			
13C4_PFOS_IIS	(503.0 / 79.9) 67496	(9.42 , N/A) (N/A , 0.03 , N/A)	73.5	N/A	1.1434 [1.0000]	114.3% { 14.1% }			
13C4_PFBA_EIS	(217.0 / 172.0) 104669	(3.71 , N/A) (N/A , 0.06 , N/A)	629.1	N/A	0.6424 [0.8000]	80.3% { 8.4% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 93566	(5.03 , N/A) (N/A , 0.09 , N/A)	624.1	N/A	0.3544 [0.4000]	88.6% { 11.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 61645	(6.18 , N/A) (N/A , 0.08 , N/A)	325.0	N/A	0.1804 [0.2000]	90.2% { 10.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 50253	(7.09 , N/A) (N/A , 0.06 , N/A)	346.1	N/A	0.1643 [0.2000]	82.1% { 9.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 56480	(7.90 , N/A) (N/A , 0.05 , N/A)	306.9	N/A	0.2328 [0.2000]	116.4% { 9.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 24102	(8.62 , N/A) (N/A , 0.05 , N/A)	234.6	N/A	0.0960 [0.1000]	96.0% { 10.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 39338	(9.29 , N/A) (N/A , 0.04 , N/A)	209.0	N/A	0.1313 [0.1000]	131.3% { 11.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 52149	(9.71 , N/A) (N/A , 0.02 , N/A)	260.1	N/A	0.1316 [0.1000]	131.6% { 12.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-01RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (18)
Acquired: 2023/01/06 - 21:29

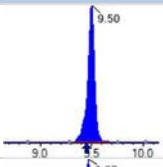
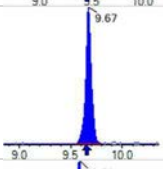
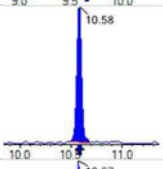
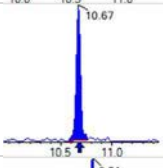
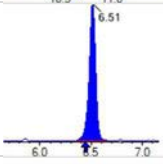
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 49524	(9.89 , N/A) (N/A , 0.02 , N/A)	175.6	N/A	0.1234 [0.1000]	123.4% { 11.8% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 24707	(10.10 , N/A) (N/A , 0.00 , N/A)	129.8	N/A	0.0860 [0.1000]	86.0% { 8.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 175650	(6.11 , N/A) (N/A , 0.08 , N/A)	316.1	N/A	0.2289 [0.2000]	114.5% { 11.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 101206	(8.00 , N/A) (N/A , 0.05 , N/A)	112.1	N/A	0.2218 [0.2000]	110.9% { 10.1% }			
13C8_PFOS_EIS	(507.0 / 80.0) 309804	(9.44 , N/A) (N/A , 0.05 , N/A)	61.6	N/A	0.3738 [0.2000]	186.9% { 25.7% }			S2,
13C2_4:2FTS_EIS	(329.0 / 81.0) 93469	(5.87 , N/A) (N/A , 0.08 , N/A)	273.9	N/A	0.7187 [0.4000]	179.7% { 17.4% }			S2,
13C2_6:2FTS_EIS	(429.0 / 81.0) 86305	(7.58 , N/A) (N/A , 0.05 , N/A)	264.7	N/A	0.4759 [0.4000]	119.0% { 13.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 102388	(8.97 , N/A) (N/A , 0.05 , N/A)	69.8	N/A	0.5531 [0.4000]	138.3% { 15.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 127039	(10.18 , N/A) (N/A , 0.01 , N/A)	298.7	N/A	0.1375 [0.2000]	68.8% { 8.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 15814	(10.61 , N/A) (N/A , 0.00 , N/A)	144.1	N/A	0.0775 [0.2000]	38.7% { 5.7% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 14161	(10.69 , N/A) (N/A , -0.01 , N/A)	23.3	N/A	0.0763 [0.2000]	38.1% { 5.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-01RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (18)
Acquired: 2023/01/06 - 21:29

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 103053	(9.50 , N/A) (N/A , 0.04 , N/A)	269.0	N/A	0.3583 [0.4000]	89.6% { 11.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 100911	(9.67 , N/A) (N/A , 0.02 , N/A)	104.5	N/A	0.4045 [0.4000]	101.1% { 13.9% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 28726	(10.58 , N/A) (N/A , 0.00 , N/A)	191.0	N/A	0.8736 [2.0000]	43.7% { 5.4% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 12414	(10.67 , N/A) (N/A , -0.01 , N/A)	175.0	N/A	0.8282 [2.0000]	41.4% { 6.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 132789	(6.51 , N/A) (N/A , 0.07 , N/A)	350.2	N/A	0.7055 [0.8000]	88.2% { 10.7% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW17-WGN01LF-2212W3

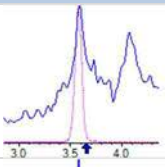
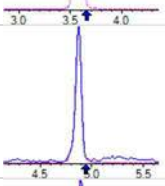
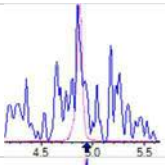
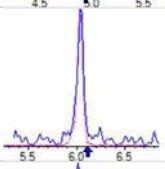
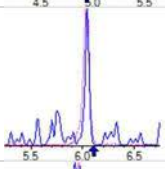
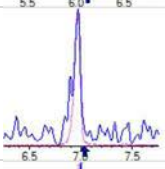
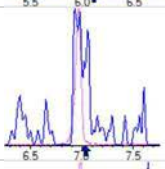
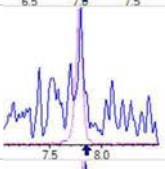
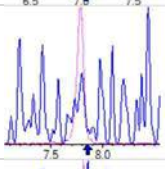
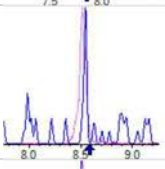
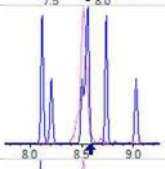
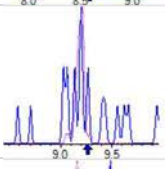
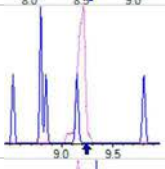
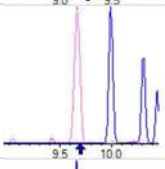
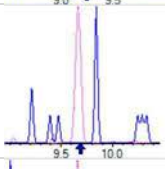
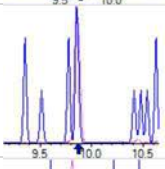
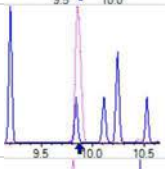
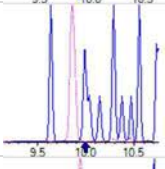
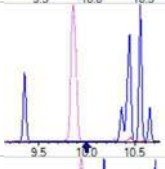
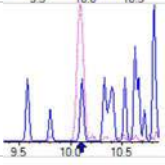
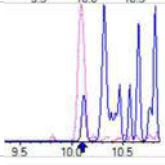
Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-02RE3	File ID:	S2023-01-06B (20)
Sampled:	12/22/22 16:10	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 21:55
Solids:		Preparation:	1633	Dilution:	10
Initial/Final:	521.55 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

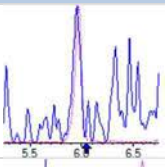
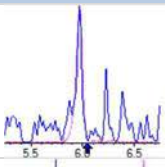
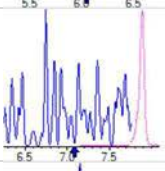
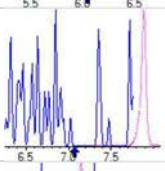
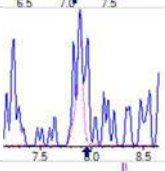
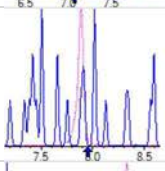
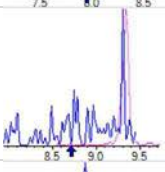
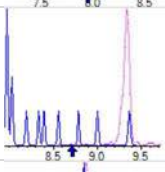
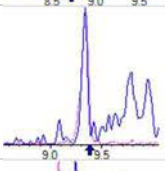
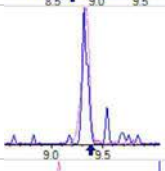
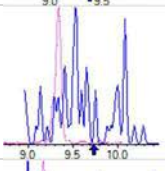
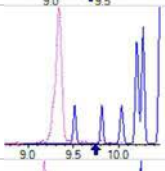
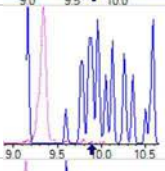
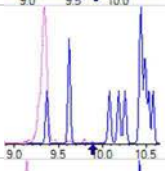
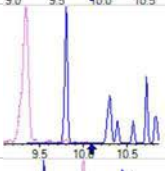
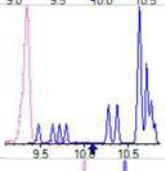
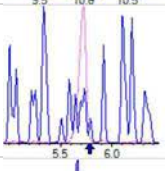
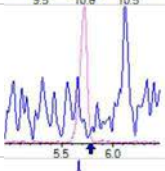
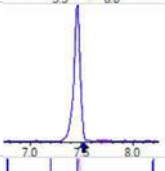
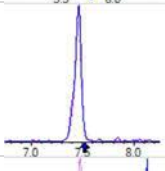
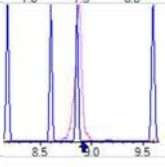
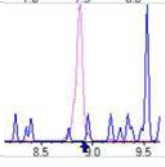
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000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

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

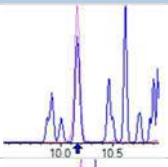
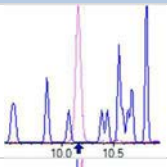
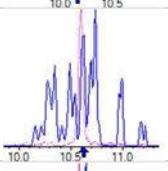
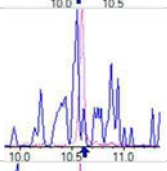
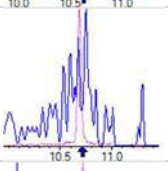
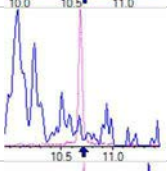
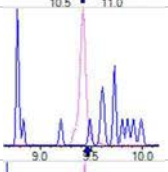
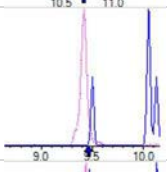
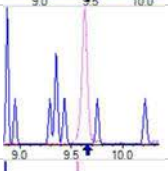
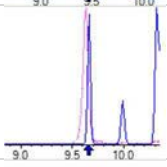
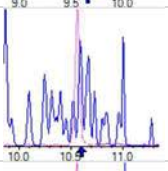
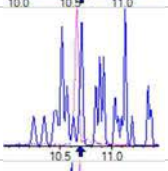
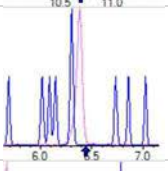
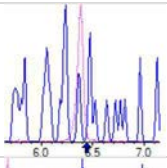
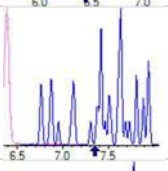
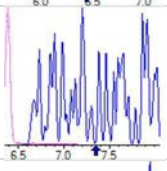
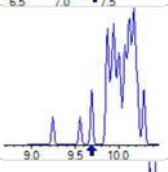
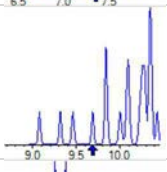
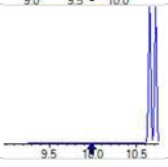
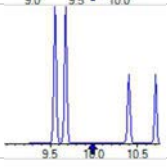
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)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

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

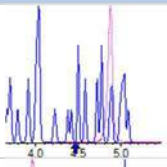
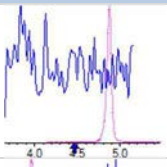
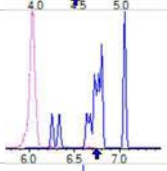
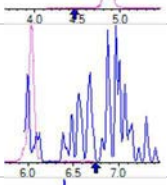
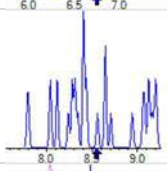
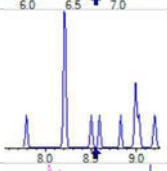
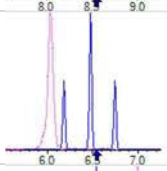
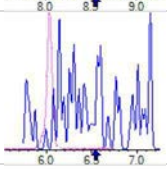
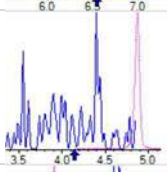
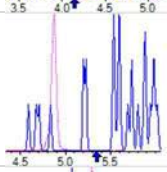
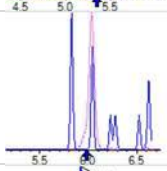
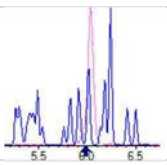
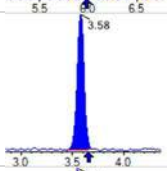
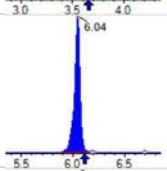
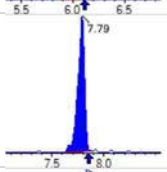
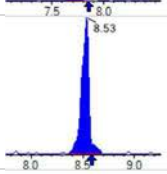
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) 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

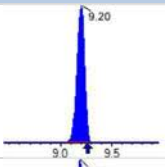
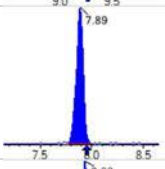
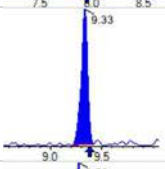
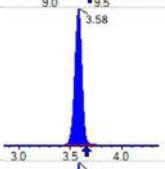
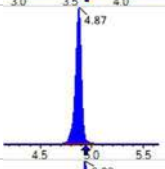
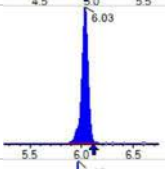
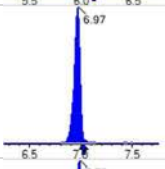
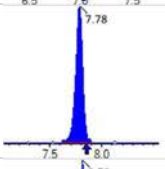
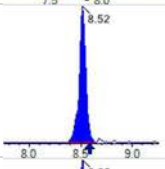
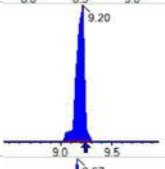
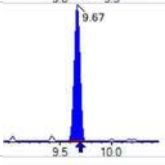
Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 16083	(3.58 , N/A) (N/A , -0.07 , N/A)	230.4	N/A	0.9515 [1.0000]	95.1% { 9.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 31776	(6.04 , N/A) (N/A , -0.06 , N/A)	286.3	N/A	1.0639 [1.0000]	106.4% { 10.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 31495	(7.79 , N/A) (N/A , -0.06 , N/A)	247.9	N/A	0.9520 [1.0000]	95.2% { 11.3% }			
13C5_PFNA_IIS	(468.0 / 423.0) 31192	(8.53 , N/A) (N/A , -0.05 , N/A)	178.0	N/A	1.1188 [1.0000]	111.9% { 12.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: 22L0170-02RE3@10 | Quant Method: 1633 - S2023-01-05B
Instrument: Saphira | DF , IV: 1 , 1.0µL | Path: S2023-01-06B (20)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2023-01-05.dam | Acquired: 2023/01/06 - 21:55

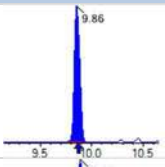
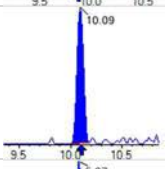
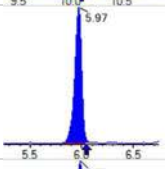
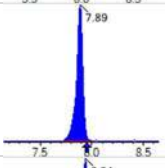
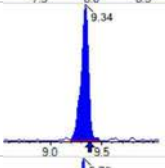
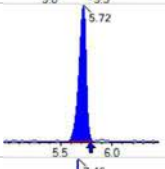
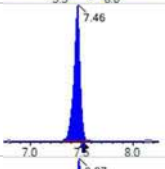
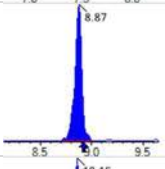
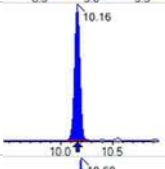
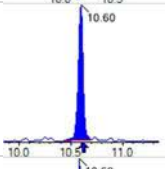
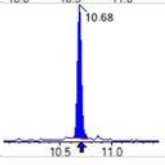
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 30018	(9.20 , N/A) (N/A , -0.05 , N/A)	957133.0	N/A	0.9600 [1.0000]	96.0% { 10.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 54886	(7.89 , N/A) (N/A , -0.06 , N/A)	328.9	N/A	0.9346 [1.0000]	93.5% { 9.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 56175	(9.33 , N/A) (N/A , -0.05 , N/A)	114.6	N/A	0.9516 [1.0000]	95.2% { 11.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 124833	(3.58 , N/A) (N/A , -0.07 , N/A)	691.9	N/A	0.7793 [0.8000]	97.4% { 10.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 100227	(4.87 , N/A) (N/A , -0.07 , N/A)	539.3	N/A	0.3899 [0.4000]	97.5% { 11.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 64811	(6.03 , N/A) (N/A , -0.07 , N/A)	292.5	N/A	0.1948 [0.2000]	97.4% { 10.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 53520	(6.97 , N/A) (N/A , -0.06 , N/A)	357.7	N/A	0.1797 [0.2000]	89.8% { 10.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 63448	(7.78 , N/A) (N/A , -0.06 , N/A)	318.6	N/A	0.2033 [0.2000]	101.7% { 10.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 27286	(8.52 , N/A) (N/A , -0.06 , N/A)	171.8	N/A	0.0881 [0.1000]	88.1% { 11.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 38161	(9.20 , N/A) (N/A , -0.05 , N/A)	4086.0	N/A	0.1084 [0.1000]	108.4% { 10.6% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 39693	(9.67 , N/A) (N/A , -0.02 , N/A)	220.5	N/A	0.0852 [0.1000]	85.2% { 9.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

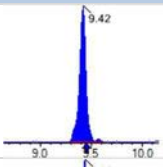
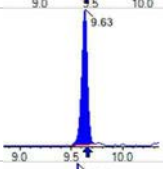
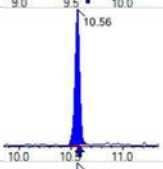
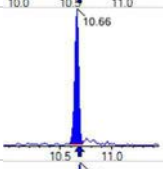
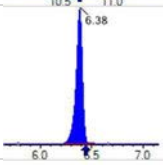
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 52083	(9.86 , N/A) (N/A , -0.01 , N/A)	239.3	N/A	0.1104 [0.1000]	110.4% { 12.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 24859	(10.09 , N/A) (N/A , -0.01 , N/A)	111.7	N/A	0.0736 [0.1000]	73.6% { 8.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 178748	(5.97 , N/A) (N/A , -0.07 , N/A)	330.2	N/A	0.2340 [0.2000]	117.0% { 11.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 97192	(7.89 , N/A) (N/A , -0.06 , N/A)	655.5	N/A	0.2140 [0.2000]	107.0% { 9.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 135204	(9.34 , N/A) (N/A , -0.04 , N/A)	153.9	N/A	0.1960 [0.2000]	98.0% { 11.2% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 74698	(5.72 , N/A) (N/A , -0.06 , N/A)	253.4	N/A	0.5770 [0.4000]	144.3% { 13.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 99039	(7.46 , N/A) (N/A , -0.06 , N/A)	447.0	N/A	0.5486 [0.4000]	137.1% { 15.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 103629	(8.87 , N/A) (N/A , -0.05 , N/A)	273.2	N/A	0.5623 [0.4000]	140.6% { 15.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 109556	(10.16 , N/A) (N/A , -0.01 , N/A)	308.2	N/A	0.1425 [0.2000]	71.3% { 7.4% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 17835	(10.60 , N/A) (N/A , -0.02 , N/A)	151.5	N/A	0.1050 [0.2000]	52.5% { 6.4% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 15979	(10.68 , N/A) (N/A , -0.02 , N/A)	28.3	N/A	0.1034 [0.2000]	51.7% { 6.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 137748	(9.42 , N/A) (N/A , -0.04 , N/A)	363.8	N/A	0.5755 [0.4000]	143.9% { 15.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 109807	(9.63 , N/A) (N/A , -0.02 , N/A)	101.1	N/A	0.5288 [0.4000]	132.2% { 15.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 30900	(10.56 , N/A) (N/A , -0.02 , N/A)	253.9	N/A	1.1291 [2.0000]	56.5% { 5.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 13488	(10.66 , N/A) (N/A , -0.02 , N/A)	173.6	N/A	1.0812 [2.0000]	54.1% { 6.6% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 132401	(6.38 , N/A) (N/A , -0.06 , N/A)	445.8	N/A	0.7224 [0.8000]	90.3% { 10.7% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW17-WGN01LF-2212W3

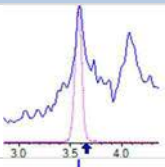
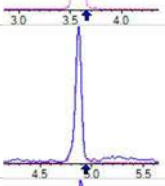
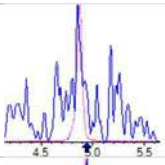
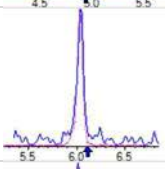
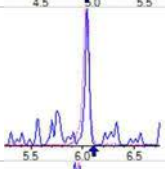
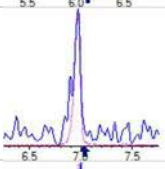
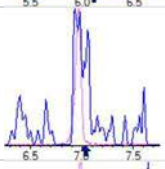
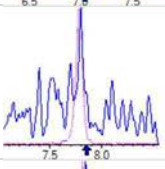
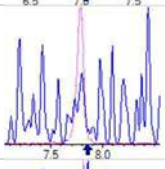
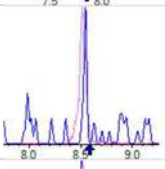
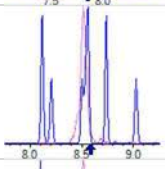
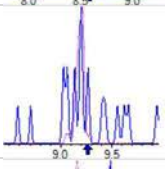
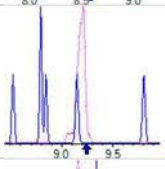
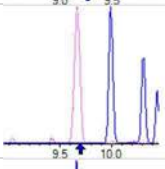
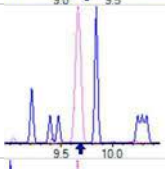
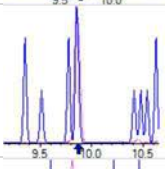
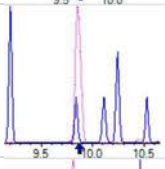
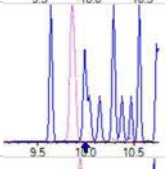
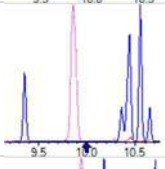
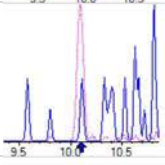
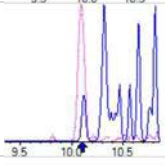
Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-02RE3	File ID:	S2023-01-06B (20)
Sampled:	12/22/22 16:10	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 21:55
Solids:		Preparation:	1633	Dilution:	10
Initial/Final:	521.55 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

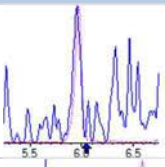
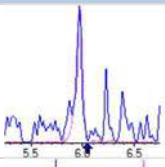
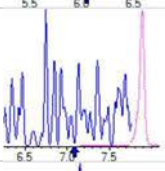
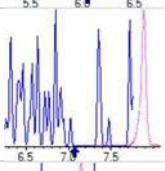
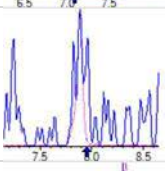
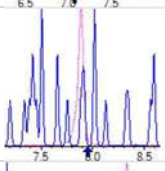
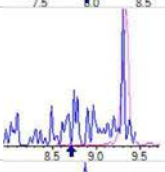
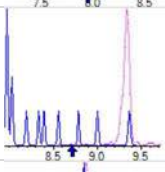
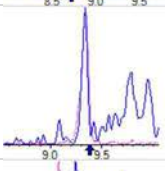
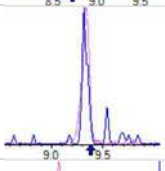
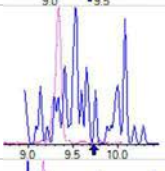
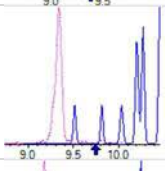
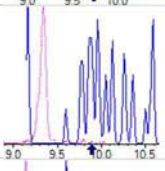
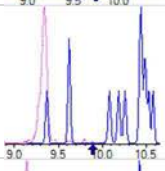
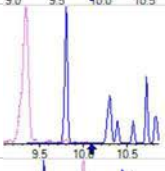
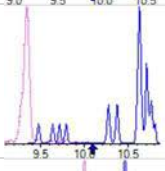
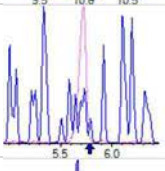
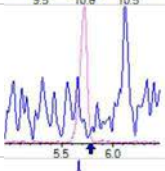
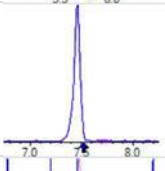
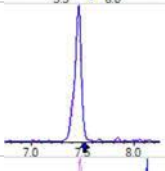
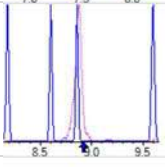
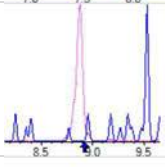
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000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

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

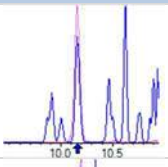
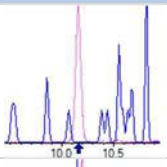
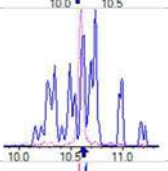
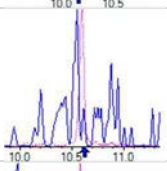
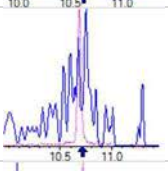
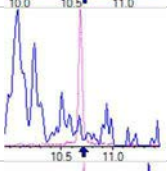
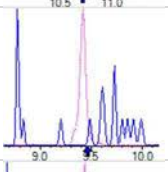
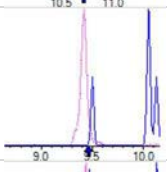
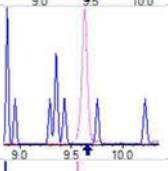
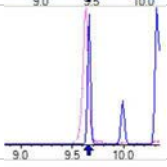
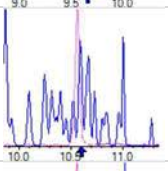
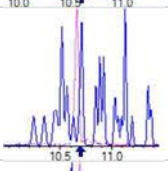
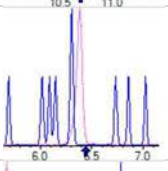
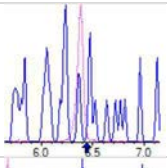
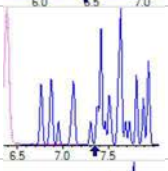
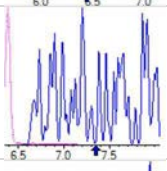
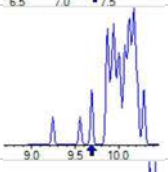
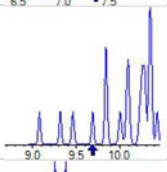
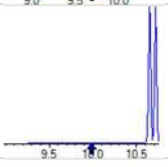
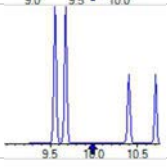
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)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

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

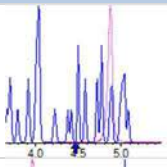
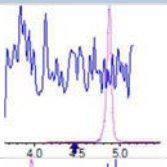
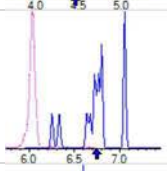
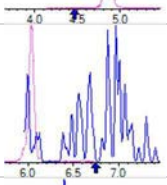
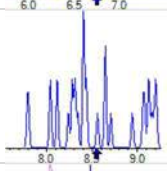
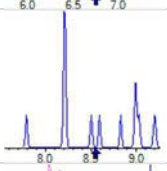
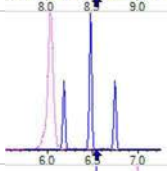
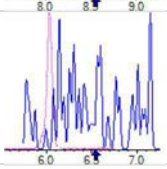
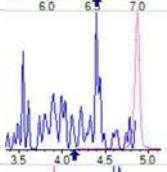
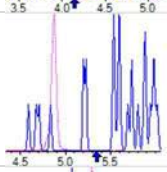
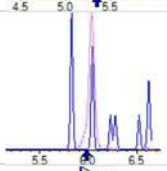
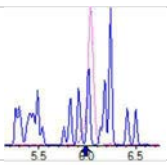
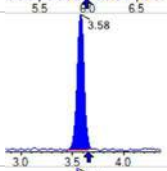
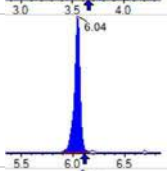
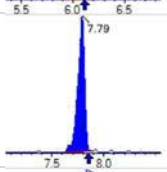
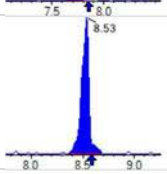
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(512.0 / 219.0) N/A (512.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSA	(526.0 / 219.0) N/A (526.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSAA	(570.0 / 419.0) 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

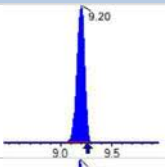
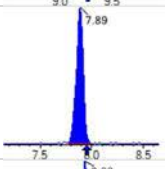
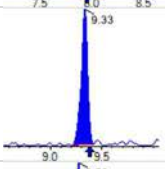
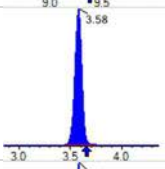
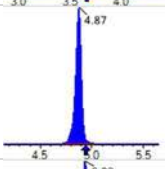
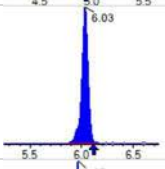
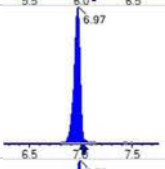
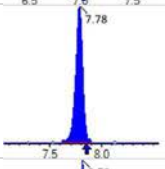
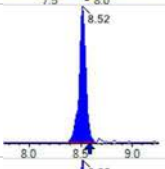
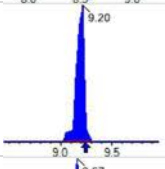
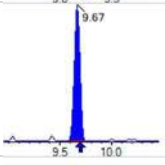
Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 16083	(3.58 , N/A) (N/A , -0.07 , N/A)	230.4	N/A	0.9515 [1.0000]	95.1% { 9.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 31776	(6.04 , N/A) (N/A , -0.06 , N/A)	286.3	N/A	1.0639 [1.0000]	106.4% { 10.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 31495	(7.79 , N/A) (N/A , -0.06 , N/A)	247.9	N/A	0.9520 [1.0000]	95.2% { 11.3% }			
13C5_PFNA_IIS	(468.0 / 423.0) 31192	(8.53 , N/A) (N/A , -0.05 , N/A)	178.0	N/A	1.1188 [1.0000]	111.9% { 12.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: 22L0170-02RE3@10 | Quant Method: 1633 - S2023-01-05B
Instrument: Saphira | DF , IV: 1 , 1.0µL | Path: S2023-01-06B (20)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2023-01-05.dam | Acquired: 2023/01/06 - 21:55

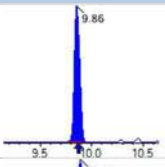
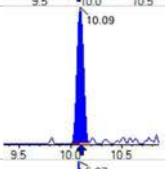
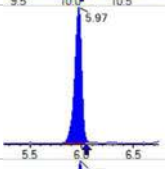
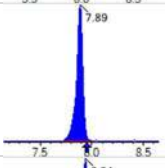
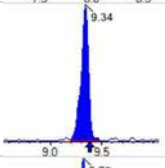
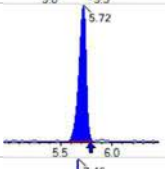
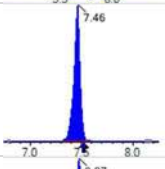
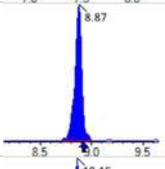
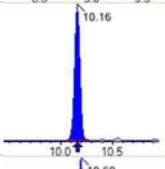
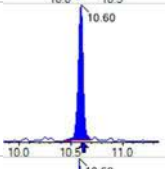
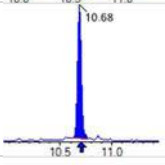
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 30018	(9.20 , N/A) (N/A , -0.05 , N/A)	957133.0	N/A	0.9600 [1.0000]	96.0% { 10.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 54886	(7.89 , N/A) (N/A , -0.06 , N/A)	328.9	N/A	0.9346 [1.0000]	93.5% { 9.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 56175	(9.33 , N/A) (N/A , -0.05 , N/A)	114.6	N/A	0.9516 [1.0000]	95.2% { 11.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 124833	(3.58 , N/A) (N/A , -0.07 , N/A)	691.9	N/A	0.7793 [0.8000]	97.4% { 10.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 100227	(4.87 , N/A) (N/A , -0.07 , N/A)	539.3	N/A	0.3899 [0.4000]	97.5% { 11.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 64811	(6.03 , N/A) (N/A , -0.07 , N/A)	292.5	N/A	0.1948 [0.2000]	97.4% { 10.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 53520	(6.97 , N/A) (N/A , -0.06 , N/A)	357.7	N/A	0.1797 [0.2000]	89.8% { 10.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 63448	(7.78 , N/A) (N/A , -0.06 , N/A)	318.6	N/A	0.2033 [0.2000]	101.7% { 10.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 27286	(8.52 , N/A) (N/A , -0.06 , N/A)	171.8	N/A	0.0881 [0.1000]	88.1% { 11.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 38161	(9.20 , N/A) (N/A , -0.05 , N/A)	4086.0	N/A	0.1084 [0.1000]	108.4% { 10.6% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 39693	(9.67 , N/A) (N/A , -0.02 , N/A)	220.5	N/A	0.0852 [0.1000]	85.2% { 9.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

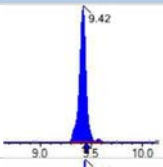
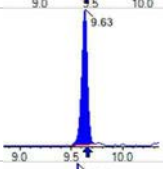
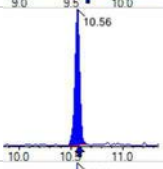
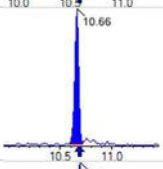
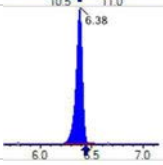
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 52083	(9.86 , N/A) (N/A , -0.01 , N/A)	239.3	N/A	0.1104 [0.1000]	110.4% { 12.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 24859	(10.09 , N/A) (N/A , -0.01 , N/A)	111.7	N/A	0.0736 [0.1000]	73.6% { 8.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 178748	(5.97 , N/A) (N/A , -0.07 , N/A)	330.2	N/A	0.2340 [0.2000]	117.0% { 11.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 97192	(7.89 , N/A) (N/A , -0.06 , N/A)	655.5	N/A	0.2140 [0.2000]	107.0% { 9.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 135204	(9.34 , N/A) (N/A , -0.04 , N/A)	153.9	N/A	0.1960 [0.2000]	98.0% { 11.2% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 74698	(5.72 , N/A) (N/A , -0.06 , N/A)	253.4	N/A	0.5770 [0.4000]	144.3% { 13.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 99039	(7.46 , N/A) (N/A , -0.06 , N/A)	447.0	N/A	0.5486 [0.4000]	137.1% { 15.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 103629	(8.87 , N/A) (N/A , -0.05 , N/A)	273.2	N/A	0.5623 [0.4000]	140.6% { 15.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 109556	(10.16 , N/A) (N/A , -0.01 , N/A)	308.2	N/A	0.1425 [0.2000]	71.3% { 7.4% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 17835	(10.60 , N/A) (N/A , -0.02 , N/A)	151.5	N/A	0.1050 [0.2000]	52.5% { 6.4% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 15979	(10.68 , N/A) (N/A , -0.02 , N/A)	28.3	N/A	0.1034 [0.2000]	51.7% { 6.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-02RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (20)
Acquired: 2023/01/06 - 21:55

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 137748	(9.42 , N/A) (N/A , -0.04 , N/A)	363.8	N/A	0.5755 [0.4000]	143.9% { 15.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 109807	(9.63 , N/A) (N/A , -0.02 , N/A)	101.1	N/A	0.5288 [0.4000]	132.2% { 15.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 30900	(10.56 , N/A) (N/A , -0.02 , N/A)	253.9	N/A	1.1291 [2.0000]	56.5% { 5.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 13488	(10.66 , N/A) (N/A , -0.02 , N/A)	173.6	N/A	1.0812 [2.0000]	54.1% { 6.6% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 132401	(6.38 , N/A) (N/A , -0.06 , N/A)	445.8	N/A	0.7224 [0.8000]	90.3% { 10.7% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW04-WGN01LF-2212W3

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-03RE2	File ID:	S2023-01-06B (21)
Sampled:	12/22/22 14:05	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 22:08
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	519.51 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.77 U	1.5	0.77	0.20	
PFPEA	0.38 U	0.77	0.38	0.063	
PFHXA	0.19 U	0.38	0.19	0.053	
PFHPA	0.19 U	0.38	0.19	0.039	
PFOA	0.19 U	0.38	0.19	0.15	
PFNA	0.19 U	0.38	0.19	0.079	
PFDA	0.19 U	0.38	0.19	0.098	
PFUnA	0.19 U	0.38	0.19	0.15	
PFDOA	0.19 U	0.38	0.19	0.11	
PFTRDA	0.29 U	0.38	0.29	0.20	
PFTEDA	0.19 U	0.38	0.19	0.19	
PFBS	0.19 U	0.38	0.19	0.035	
PFPES	0.19 U	0.38	0.19	0.060	
PFHXS	0.19 U	0.38	0.19	0.030	
PFHPS	0.19 U	0.38	0.19	0.049	
PFOS	1.3	0.38	0.19	0.061	MI4
PFNS	0.19 U	0.38	0.19	0.12	
PFDS	0.19 U	0.38	0.19	0.15	
PFDOS	0.19 U	0.38	0.19	0.12	
4:2FTS	0.77 U	1.5	0.77	0.28	
6:2FTS	0.77 U	1.5	0.77	0.30	
8:2FTS	0.77 U	1.5	0.77	0.079	
PFOSA	0.19 U	0.38	0.19	0.10	
NMeFOSA	0.77 U	1.5	0.77	0.46	
NEtFOSA	0.77 U	1.5	0.77	0.40	
NMeFOSAA	0.19 U	0.38	0.19	0.10	
NEtFOSAA	0.19 U	0.38	0.19	0.11	
NMeFOSE	1.2 U	1.5	1.2	0.97	
NEtFOSE	1.2 U	1.5	1.2	1.0	
HFPO-DA	0.38 U	0.77	0.38	0.17	

FORM I
ANALYSIS DATA SHEET

AF-RHMW04-WGN01LF-2212W3

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-03RE2	File ID:	S2023-01-06B (21)
Sampled:	12/22/22 14:05	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 22:08
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	519.51 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

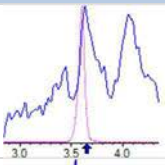
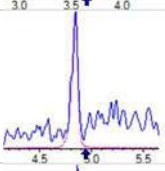
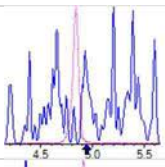
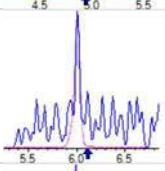
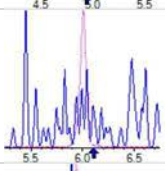
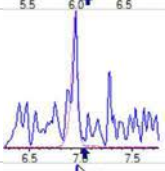
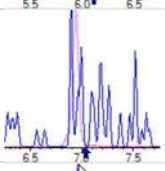
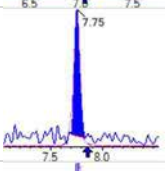
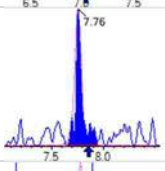
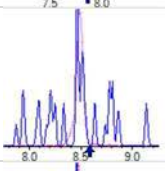
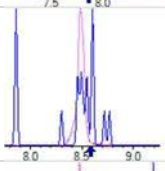
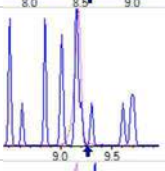
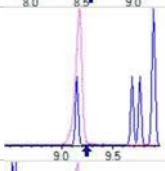
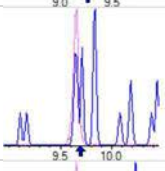
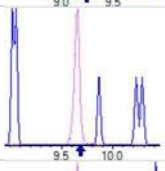
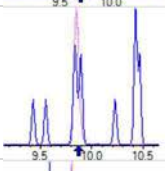
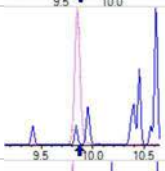
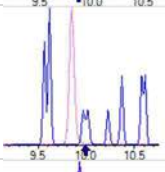
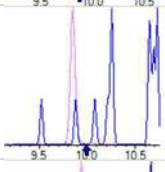
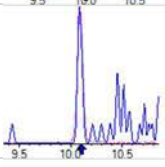
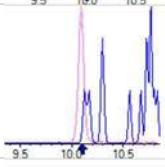
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.38 U	0.77	0.38	0.12	
PFEESA	0.38 U	0.77	0.38	0.10	
PFMPA	0.38 U	0.77	0.38	0.052	
PFMBA	0.38 U	0.77	0.38	0.087	
NFDHA	0.38 U	0.77	0.38	0.29	
9CL-PF3ONS	0.38 U	0.77	0.38	0.20	
11CL-PF3OUDS	0.38 U	0.77	0.38	0.20	
3:3FTCA	0.77 U	1.5	0.77	0.55	
5:3FTCA	0.77 U	1.5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

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-03RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (21)
Acquired: 2023/01/06 - 22:08

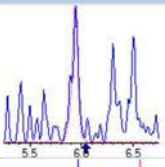
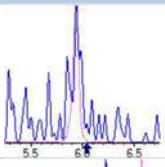
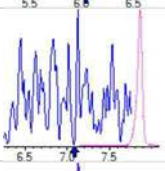
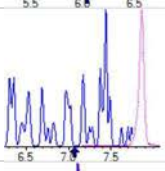
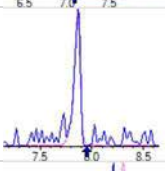
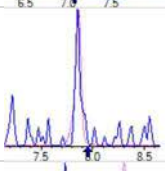
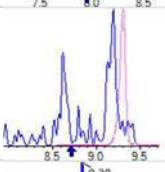
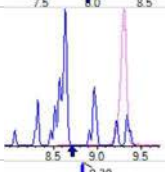
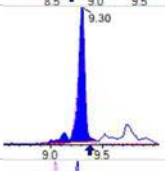
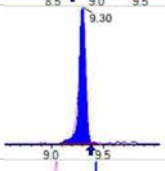
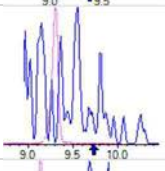
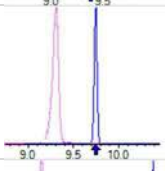
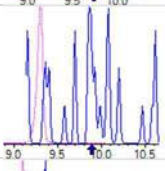
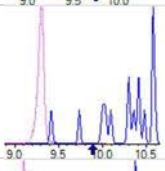
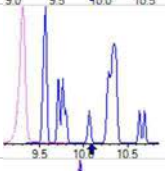
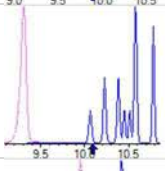
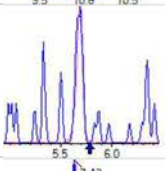
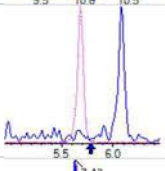
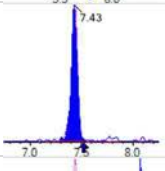
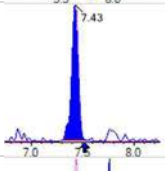
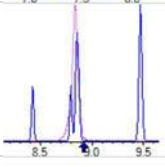
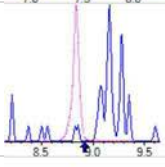
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(263.0 / 219.0) N/A (263.0 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) 10492 (413.0 / 169.0) 4841	(7.75 , 1.00) (0.00 , N/A , -0.3)	40.3 52.1	0.4614 139.2 140.3	0.0322	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.: 22L0170-03RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (21)
Acquired: 2023/01/06 - 22:08

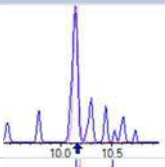
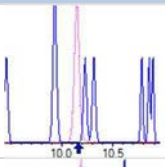
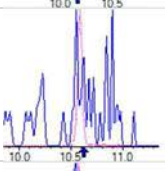
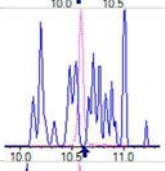
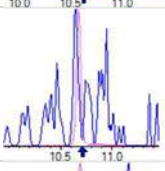
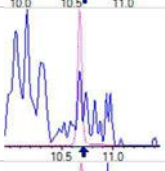
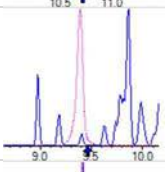
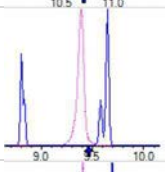
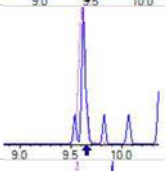
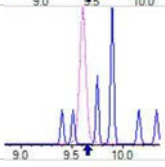
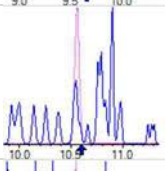
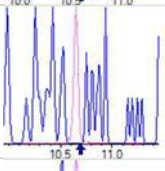
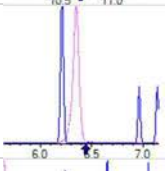
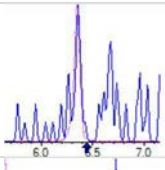
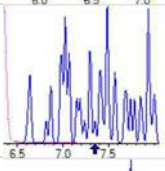
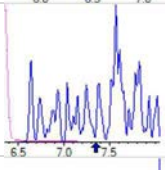
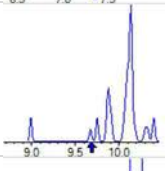
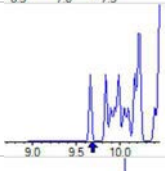
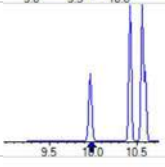
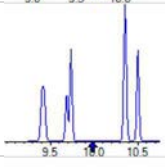
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) N/A (399.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) 335600 (499.0 / 99.0) 91648	(9.30 , 1.00) (0.00 , N/A , 0.4)	128.7 440.7	0.2731 121.6 114.3	0.3350	N/A			MI4 ABK 1/8/23
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) 27407 (427.0 / 81.0) 17989	(7.43 , 1.00) (0.00 , N/A , 0.2)	147.0 68.0	0.6563 90.4 83.7	0.0770	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.: 22L0170-03RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (21)
Acquired: 2023/01/06 - 22:08

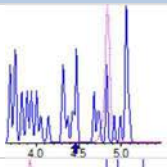
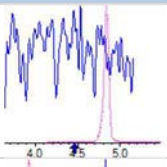
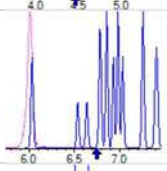
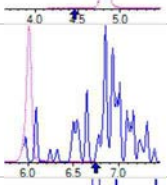
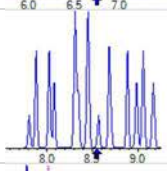
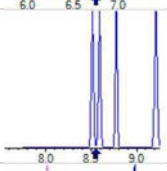
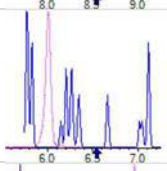
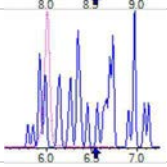
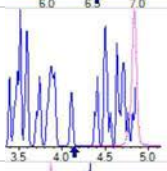
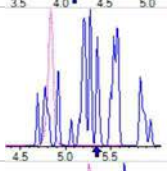
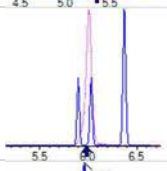
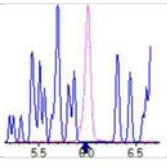
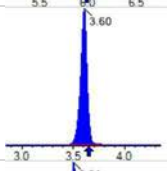
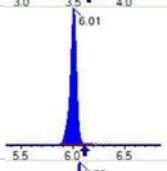
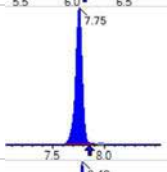
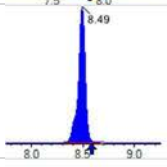
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: 22L0170-03RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (21)
Acquired: 2023/01/06 - 22:08

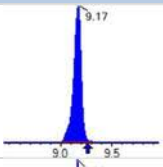
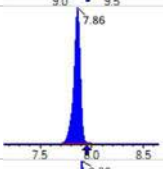
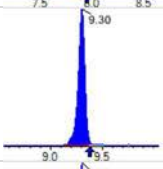
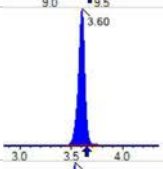
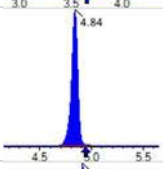
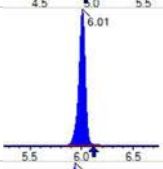
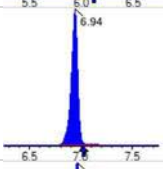
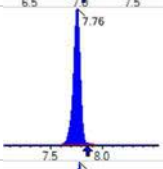
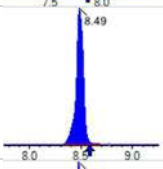
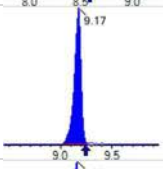
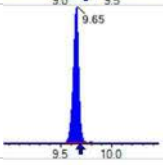
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 160997	(3.60 , N/A) (N/A , -0.05 , N/A)	599.5	N/A	0.9525 [1.0000]	95.2% { 97.7% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 275232	(6.01 , N/A) (N/A , -0.10 , N/A)	458.7	N/A	0.9215 [1.0000]	92.2% { 91.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 297819	(7.75 , N/A) (N/A , -0.10 , N/A)	500.8	N/A	0.9002 [1.0000]	90.0% { 107.2% }			
13C5_PFNA_IIS	(468.0 / 423.0) 257828	(8.49 , N/A) (N/A , -0.09 , N/A)	509.5	N/A	0.9248 [1.0000]	92.5% { 101.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-03RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (21)
Acquired: 2023/01/06 - 22:08

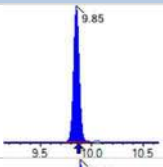
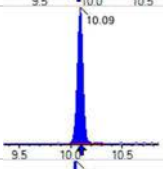
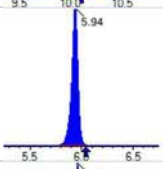
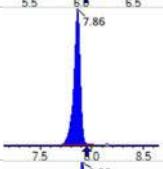
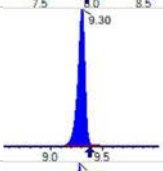
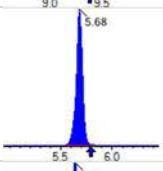
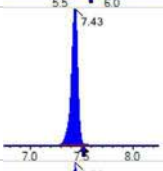
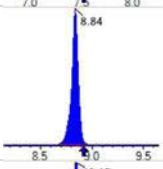
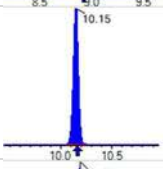
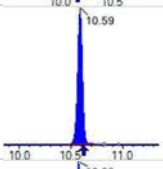
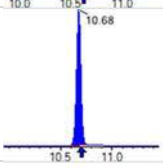
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 279821	(9.17 , N/A) (N/A , -0.09 , N/A)	567.7	N/A	0.8949 [1.0000]	89.5% { 98.5% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 541122	(7.86 , N/A) (N/A , -0.09 , N/A)	710.7	N/A	0.9214 [1.0000]	92.1% { 96.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 581339	(9.30 , N/A) (N/A , -0.08 , N/A)	445.8	N/A	0.9848 [1.0000]	98.5% { 121.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1269977	(3.60 , N/A) (N/A , -0.05 , N/A)	639.4	N/A	7.9194 [8.0000]	99.0% { 101.8% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 900692	(4.84 , N/A) (N/A , -0.10 , N/A)	574.3	N/A	4.0451 [4.0000]	101.1% { 107.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 627969	(6.01 , N/A) (N/A , -0.10 , N/A)	498.0	N/A	2.1794 [2.0000]	109.0% { 105.5% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 543388	(6.94 , N/A) (N/A , -0.09 , N/A)	501.4	N/A	2.1059 [2.0000]	105.3% { 105.7% }			
13C8_PFOA_EIS	(421.0 / 376.0) 617915	(7.76 , N/A) (N/A , -0.09 , N/A)	487.9	N/A	2.0942 [2.0000]	104.7% { 104.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 254951	(8.49 , N/A) (N/A , -0.09 , N/A)	491.5	N/A	0.9960 [1.0000]	99.6% { 105.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 368806	(9.17 , N/A) (N/A , -0.08 , N/A)	474.2	N/A	1.1233 [1.0000]	112.3% { 102.7% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 536118	(9.65 , N/A) (N/A , -0.03 , N/A)	390.5	N/A	1.2345 [1.0000]	123.4% { 132.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-03RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (21)
Acquired: 2023/01/06 - 22:08

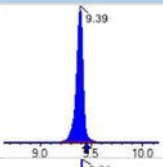
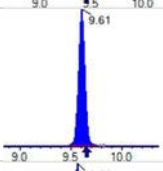
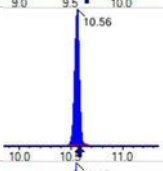
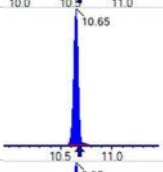
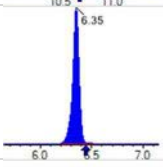
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 499158	(9.85 , N/A) (N/A , -0.02 , N/A)	423.4	N/A	1.1347 [1.0000]	113.5% { 118.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 315569	(10.09 , N/A) (N/A , -0.01 , N/A)	485.6	N/A	1.0027 [1.0000]	100.3% { 107.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1786881	(5.94 , N/A) (N/A , -0.10 , N/A)	653.3	N/A	2.3727 [2.0000]	118.6% { 111.5% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 957972	(7.86 , N/A) (N/A , -0.09 , N/A)	517.8	N/A	2.1391 [2.0000]	107.0% { 95.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1505649	(9.30 , N/A) (N/A , -0.08 , N/A)	484.9	N/A	2.1091 [2.0000]	105.5% { 124.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 776744	(5.68 , N/A) (N/A , -0.10 , N/A)	652.3	N/A	6.0858 [4.0000]	152.1% { 144.4% }			S2,
13C2_6:2FTS_EIS	(429.0 / 81.0) 885567	(7.43 , N/A) (N/A , -0.09 , N/A)	827.8	N/A	4.9752 [4.0000]	124.4% { 140.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 861380	(8.84 , N/A) (N/A , -0.08 , N/A)	520.7	N/A	4.7410 [4.0000]	118.5% { 127.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1119197	(10.15 , N/A) (N/A , -0.02 , N/A)	763.5	N/A	1.4067 [2.0000]	70.3% { 75.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 137180	(10.59 , N/A) (N/A , -0.03 , N/A)	613.1	N/A	0.7803 [2.0000]	39.0% { 49.2% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 119724	(10.68 , N/A) (N/A , -0.03 , N/A)	32.7	N/A	0.7486 [2.0000]	37.4% { 48.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-03RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (21)
Acquired: 2023/01/06 - 22:08

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 1324369	(9.39 , N/A) (N/A , -0.07 , N/A)	381.3	N/A	5.3468 [4.0000]	133.7% { 147.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1060270	(9.61 , N/A) (N/A , -0.05 , N/A)	164.9	N/A	4.9340 [4.0000]	123.4% { 145.7% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 207175	(10.56 , N/A) (N/A , -0.02 , N/A)	657.4	N/A	7.3152 [20.0000]	36.6% { 38.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 110824	(10.65 , N/A) (N/A , -0.03 , N/A)	895.5	N/A	8.5841 [20.0000]	42.9% { 54.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1335128	(6.35 , N/A) (N/A , -0.09 , N/A)	596.4	N/A	8.4103 [8.0000]	105.1% { 107.7% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW04-WGN01LF-2212W3

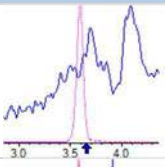
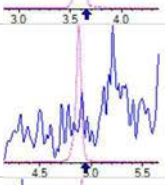
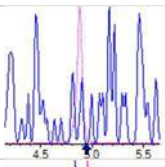
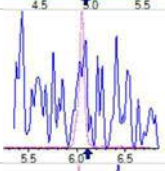
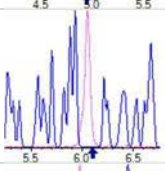
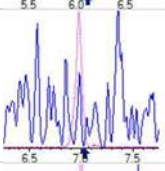
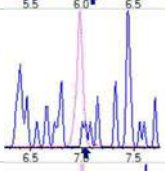
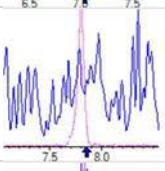
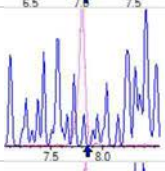
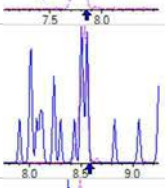
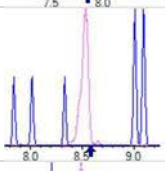
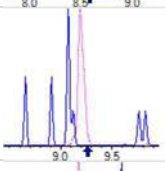
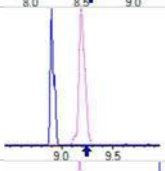
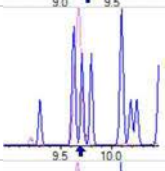
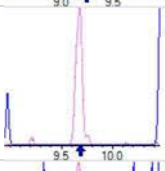
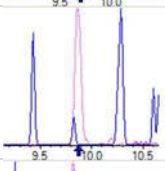
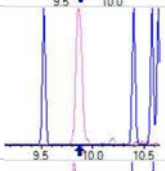
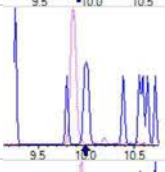
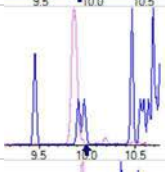
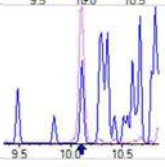
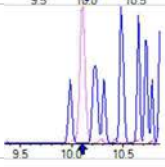
Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-03RE3	File ID:	S2023-01-06B (22)
Sampled:	12/22/22 14:05	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 22:21
Solids:		Preparation:	1633	Dilution:	10
Initial/Final:	519.51 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-03RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (22)
Acquired: 2023/01/06 - 22:21

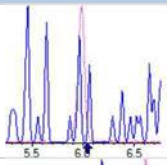
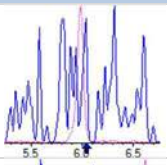
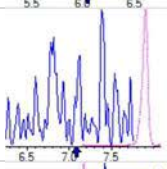
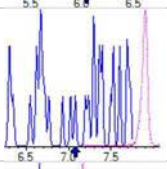
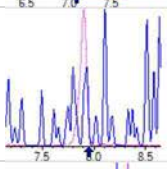
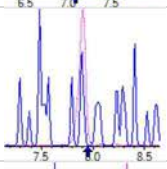
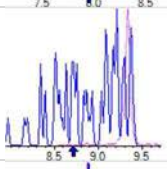
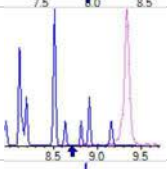
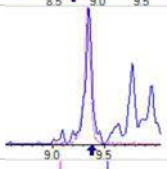
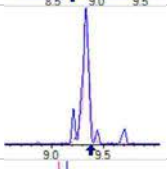
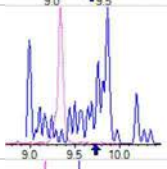
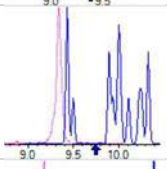
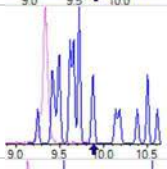
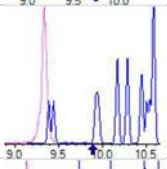
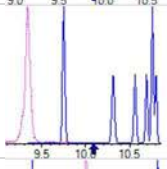
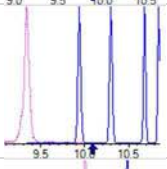
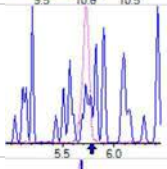
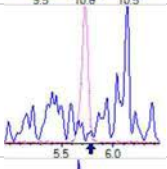
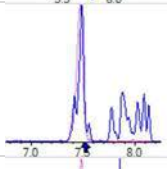
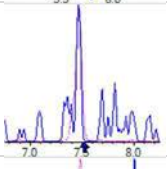
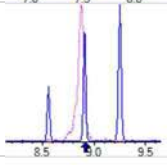
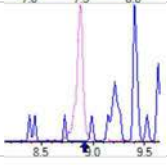
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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.: 22L0170-03RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (22)
Acquired: 2023/01/06 - 22:21

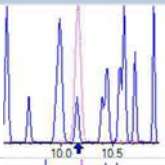
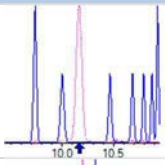
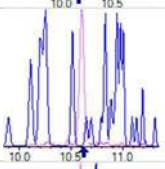
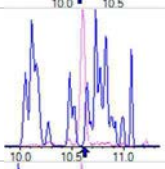
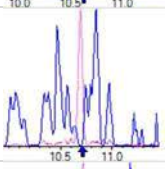
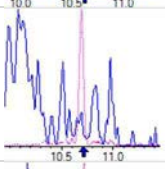
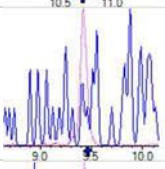
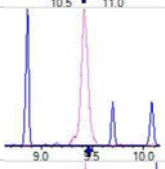
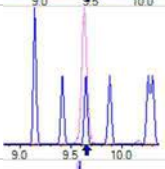
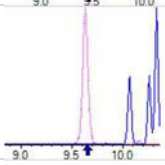
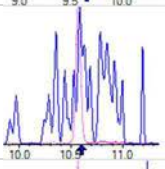
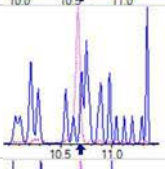
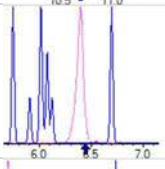
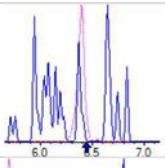
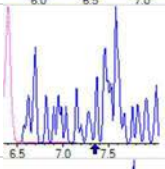
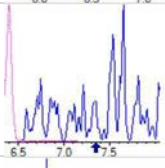
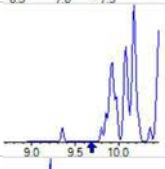
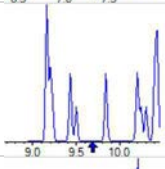
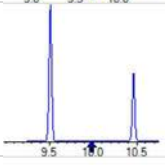
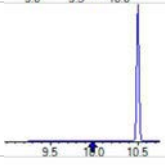
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: 22L0170-03RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (22)
Acquired: 2023/01/06 - 22:21

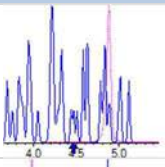
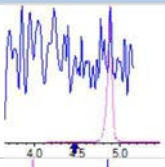
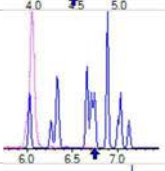
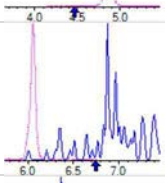
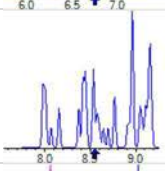
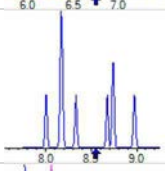
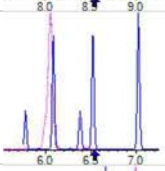
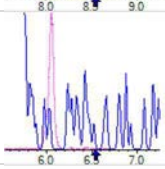
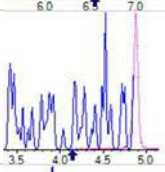
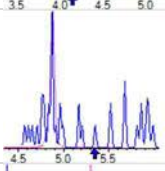
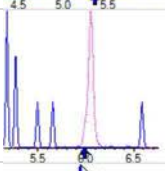
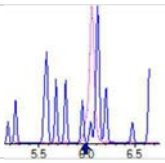
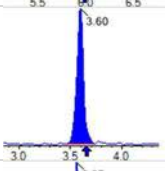
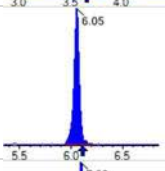
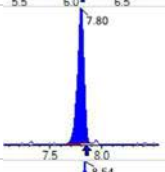
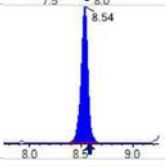
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: 22L0170-03RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (22)
Acquired: 2023/01/06 - 22:21

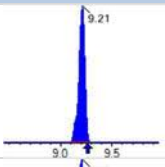
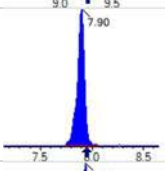
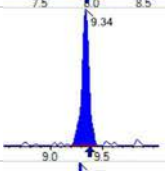
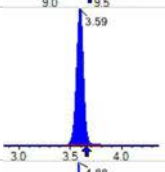
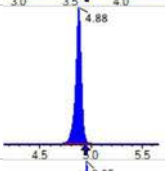
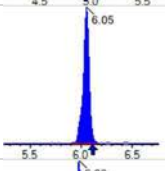
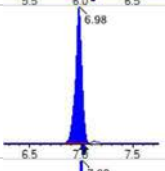
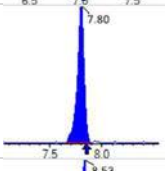
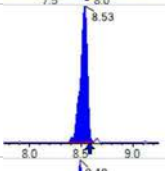
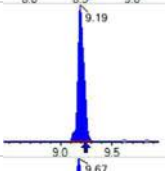
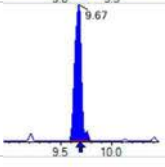
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 13891	(3.60 , N/A) (N/A , -0.06 , N/A)	213.4	N/A	0.8218 [1.0000]	82.2% { 8.4% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 28234	(6.05 , N/A) (N/A , -0.05 , N/A)	355.8	N/A	0.9453 [1.0000]	94.5% { 9.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 27757	(7.80 , N/A) (N/A , -0.05 , N/A)	289.1	N/A	0.8390 [1.0000]	83.9% { 10.0% }			
13C5_PFNA_IIS	(468.0 / 423.0) 22670	(8.54 , N/A) (N/A , -0.04 , N/A)	282.2	N/A	0.8131 [1.0000]	81.3% { 8.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-03RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (22)
Acquired: 2023/01/06 - 22:21

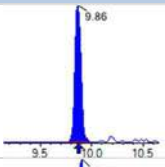
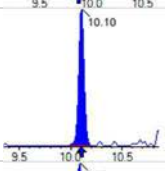
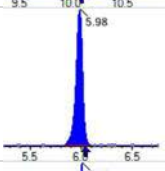
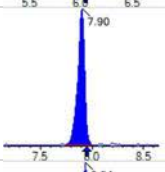
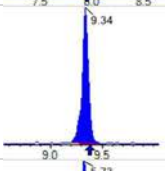
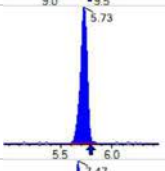
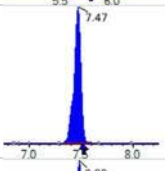
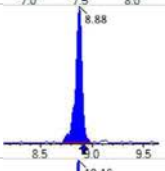
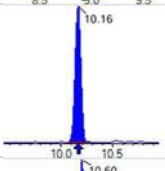
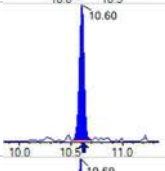
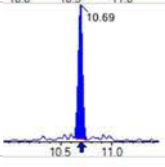
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 32928	(9.21 , N/A) (N/A , -0.04 , N/A)	98.5	N/A	1.0530 [1.0000]	105.3% { 11.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 54047	(7.90 , N/A) (N/A , -0.05 , N/A)	333.5	N/A	0.9203 [1.0000]	92.0% { 9.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 58946	(9.34 , N/A) (N/A , -0.05 , N/A)	120.8	N/A	0.9985 [1.0000]	99.9% { 12.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 112168	(3.59 , N/A) (N/A , -0.06 , N/A)	750.8	N/A	0.8107 [0.8000]	101.3% { 9.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 89962	(4.88 , N/A) (N/A , -0.06 , N/A)	513.4	N/A	0.3939 [0.4000]	98.5% { 10.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 53082	(6.05 , N/A) (N/A , -0.05 , N/A)	357.4	N/A	0.1796 [0.2000]	89.8% { 8.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 49483	(6.98 , N/A) (N/A , -0.05 , N/A)	480.0	N/A	0.1869 [0.2000]	93.5% { 9.6% }			
13C8_PFOA_EIS	(421.0 / 376.0) 58407	(7.80 , N/A) (N/A , -0.05 , N/A)	420.4	N/A	0.2124 [0.2000]	106.2% { 9.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 31084	(8.53 , N/A) (N/A , -0.05 , N/A)	355.4	N/A	0.1381 [0.1000]	138.1% { 12.9% }			
13C6_PFDA_EIS	(519.0 / 474.0) 37825	(9.19 , N/A) (N/A , -0.05 , N/A)	473.5	N/A	0.0979 [0.1000]	97.9% { 10.5% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 43078	(9.67 , N/A) (N/A , -0.01 , N/A)	204.3	N/A	0.0843 [0.1000]	84.3% { 10.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-03RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (22)
Acquired: 2023/01/06 - 22:21

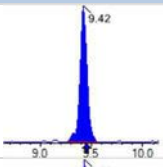
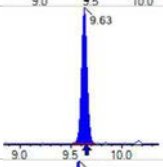
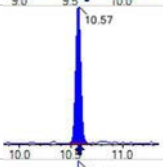
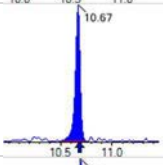
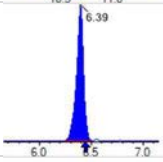
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 52941	(9.86 , N/A) (N/A , 0.00 , N/A)	126.8	N/A	0.1023 [0.1000]	102.3% { 12.6% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 28410	(10.10 , N/A) (N/A , 0.00 , N/A)	211.8	N/A	0.0767 [0.1000]	76.7% { 9.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 154694	(5.98 , N/A) (N/A , -0.05 , N/A)	346.2	N/A	0.2057 [0.2000]	102.8% { 9.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 95853	(7.90 , N/A) (N/A , -0.05 , N/A)	333.0	N/A	0.2143 [0.2000]	107.1% { 9.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 150785	(9.34 , N/A) (N/A , -0.04 , N/A)	247.5	N/A	0.2083 [0.2000]	104.2% { 12.5% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 70075	(5.73 , N/A) (N/A , -0.05 , N/A)	366.8	N/A	0.5497 [0.4000]	137.4% { 13.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 83763	(7.47 , N/A) (N/A , -0.05 , N/A)	375.3	N/A	0.4712 [0.4000]	117.8% { 13.3% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 83112	(8.88 , N/A) (N/A , -0.05 , N/A)	186.0	N/A	0.4580 [0.4000]	114.5% { 12.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 119661	(10.16 , N/A) (N/A , 0.00 , N/A)	292.5	N/A	0.1483 [0.2000]	74.2% { 8.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 13661	(10.60 , N/A) (N/A , -0.01 , N/A)	118.1	N/A	0.0766 [0.2000]	38.3% { 4.9% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 12652	(10.69 , N/A) (N/A , -0.01 , N/A)	22.3	N/A	0.0780 [0.2000]	39.0% { 5.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-03RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (22)
Acquired: 2023/01/06 - 22:21

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 111657	(9.42 , N/A) (N/A , -0.03 , N/A)	224.9	N/A	0.4446 [0.4000]	111.1% { 12.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 109708	(9.63 , N/A) (N/A , -0.02 , N/A)	170.3	N/A	0.5035 [0.4000]	125.9% { 15.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 27570	(10.57 , N/A) (N/A , -0.01 , N/A)	237.6	N/A	0.9601 [2.0000]	48.0% { 5.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 12899	(10.67 , N/A) (N/A , -0.01 , N/A)	162.2	N/A	0.9854 [2.0000]	49.3% { 6.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 108293	(6.39 , N/A) (N/A , -0.05 , N/A)	529.4	N/A	0.6650 [0.8000]	83.1% { 8.7% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW06-WGN01LF-2212W3

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-04RE2	File ID:	S2023-01-06B (23)
Sampled:	12/22/22 11:40	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 22:34
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	524.52 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.79 J	1.5	0.76	0.20	
PFPEA	1.1	0.76	0.38	0.062	
PFHXA	0.45	0.38	0.19	0.052	
PFHPA	1.2	0.38	0.19	0.039	
PFOA	0.15 J	0.38	0.19	0.15	
PFNA	0.19 U	0.38	0.19	0.078	
PFDA	0.19 U	0.38	0.19	0.097	
PFUnA	0.19 U	0.38	0.19	0.15	
PFDOA	0.19 U	0.38	0.19	0.11	
PFTRDA	0.29 U	0.38	0.29	0.19	
PFTEDA	0.19 U	0.38	0.19	0.19	
PFBS	0.19 U	0.38	0.19	0.035	
PFPES	0.19 U	0.38	0.19	0.060	
PFHXS	0.19 U	0.38	0.19	0.030	
PFHPS	0.19 U	0.38	0.19	0.049	
PFOS	0.68	0.38	0.19	0.061	
PFNS	0.19 U	0.38	0.19	0.12	
PFDS	0.19 U	0.38	0.19	0.14	
PFDOS	0.19 U	0.38	0.19	0.12	
4:2FTS	0.76 U	1.5	0.76	0.28	
6:2FTS	0.91 J	1.5	0.76	0.30	
8:2FTS	0.76 U	1.5	0.76	0.078	
PFOSA	0.19 U	0.38	0.19	0.099	
NMeFOSA	0.76 U	1.5	0.76	0.45	
NEtFOSA	0.76 U	1.5	0.76	0.39	
NMeFOSAA	0.19 U	0.38	0.19	0.10	
NEtFOSAA	0.19 U	0.38	0.19	0.11	
NMeFOSE	1.1 U	1.5	1.1	0.96	
NEtFOSE	1.1 U	1.5	1.1	1.0	
HFPO-DA	0.38 U	0.76	0.38	0.17	

FORM I
ANALYSIS DATA SHEET

AF-RHMW06-WGN01LF-2212W3

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-04RE2	File ID:	S2023-01-06B (23)
Sampled:	12/22/22 11:40	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 22:34
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	524.52 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

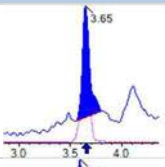
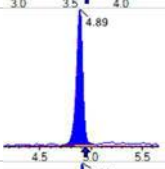
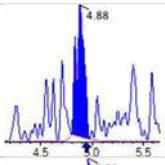
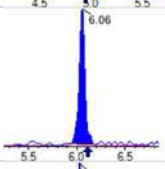
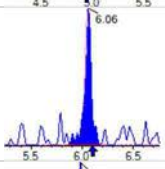
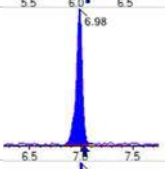
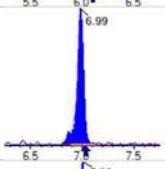
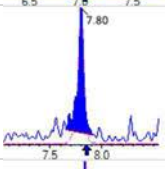
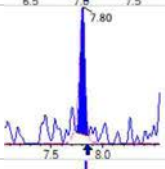
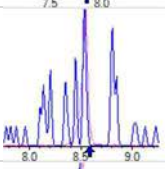
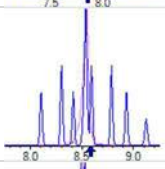
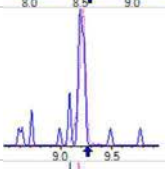
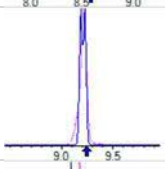
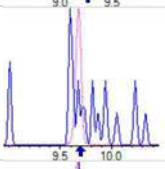
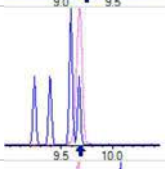
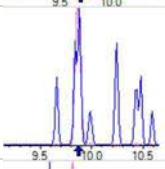
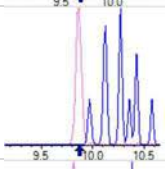
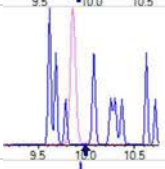
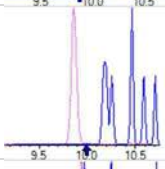
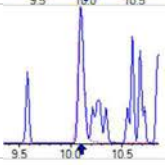
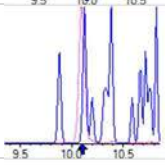
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.38 U	0.76	0.38	0.12	
PFEESA	0.38 U	0.76	0.38	0.10	
PFMPA	0.38 U	0.76	0.38	0.051	
PFMBA	0.38 U	0.76	0.38	0.087	
NFDHA	0.38 U	0.76	0.38	0.29	
9CL-PF3ONS	0.38 U	0.76	0.38	0.20	
11CL-PF3OUDS	0.38 U	0.76	0.38	0.20	
3:3FTCA	0.76 U	1.5	0.76	0.55	
5:3FTCA	0.76 U	1.5	0.76	0.42	
7:3FTCA	0.76 U	1.5	0.76	0.53	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (23)
Acquired: 2023/01/06 - 22:34

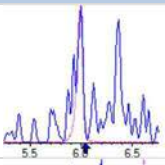
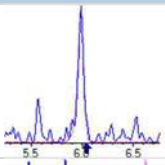
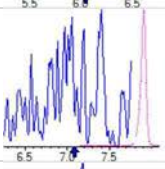
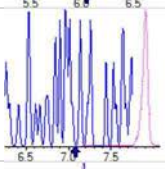
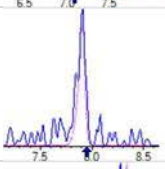
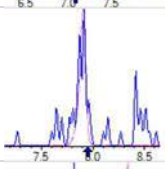
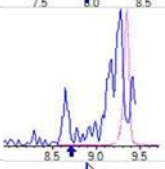
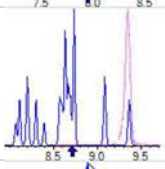
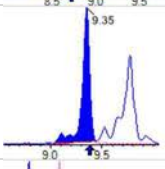
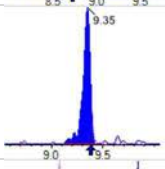
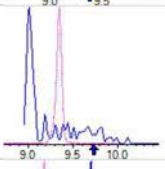
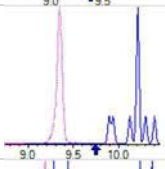
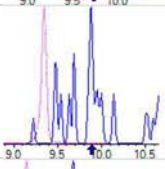
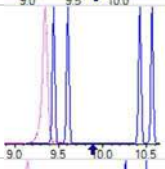
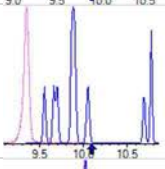
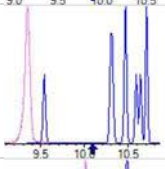
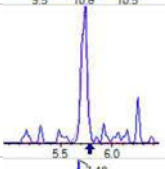
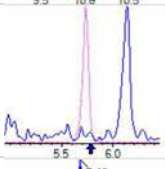
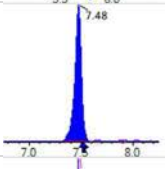
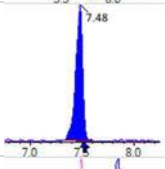
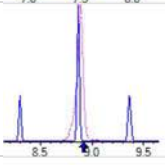
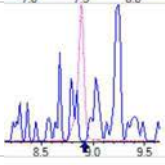
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 27144	(3.65 , 1.00) (0.00 , N/A , 0.0)	31.5	N/A 0.0 0.0	0.2062	N/A			
PFPeA	(263.0 / 219.0) 55276 (263.0 / 69.0) 681	(4.89 , 1.00) (0.00 , N/A , 0.5)	210.7 11.1	0.0123 101.5 99.2	0.2889	N/A			
PFHxA	(313.0 / 269.0) 34068 (313.0 / 119.0) 3260	(6.06 , 1.00) (0.00 , N/A , -0.6)	130.3 85.0	0.0957 95.9 91.9	0.1189	N/A			
PFHpA	(363.0 / 319.0) 85888 (363.0 / 169.0) 25879	(6.98 , 1.00) (0.00 , N/A , -0.1)	212.9 140.9	0.3013 101.1 101.5	0.3182	N/A			
PFOA	(413.0 / 369.0) 12772 (413.0 / 169.0) 3538	(7.80 , 1.00) (0.00 , N/A , -0.3)	33.2 22.9	0.2770 83.6 84.2	0.0382	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.: 22L0170-04RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (23)
Acquired: 2023/01/06 - 22:34

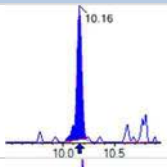
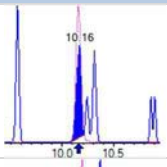
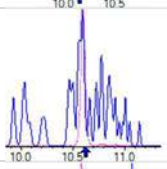
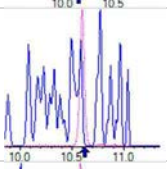
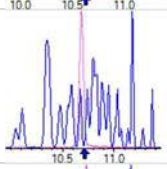
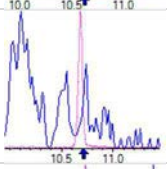
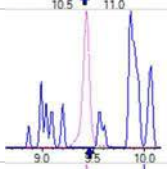
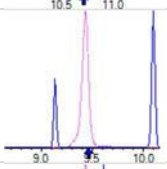
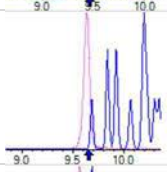
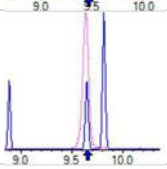
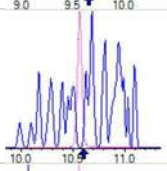
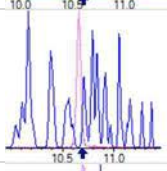
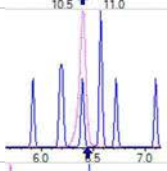
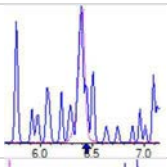
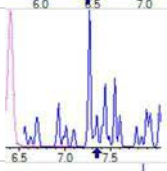
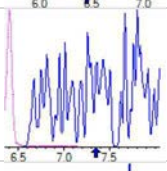
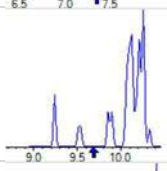
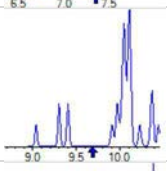
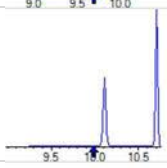
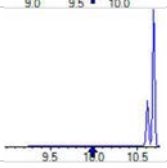
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 201151 (499.0 / 99.0) 53086	(9.35 , 1.00) (0.00 , N/A , 0.2)	97.3 1766.9	0.2639 117.5 110.4	0.1774	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) 96467 (427.0 / 81.0) 61876	(7.48 , 1.00) (0.00 , N/A , -0.1)	336.8 262.2	0.6414 88.3 81.8	0.2393	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.: 22L0170-04RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (23)
Acquired: 2023/01/06 - 22:34

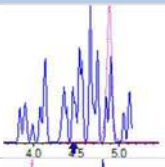
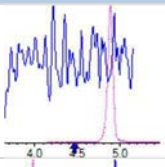
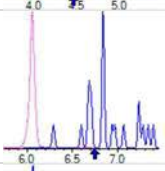
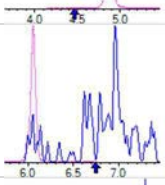
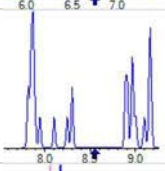
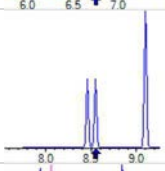
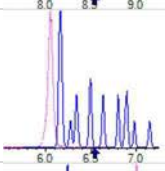
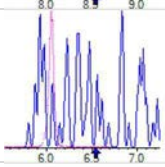
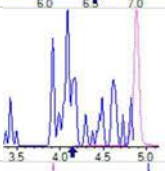
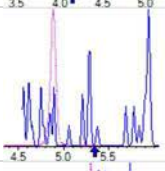
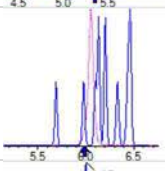
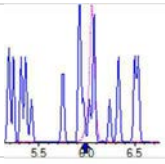
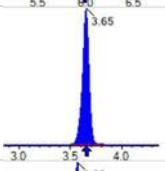
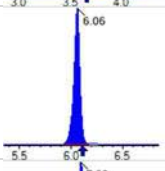
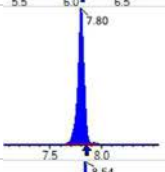
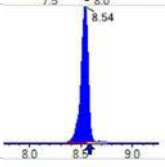
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 7612 (498.0 / 478.0) 594	(10.16 , 1.00) (0.00 , N/A , -0.3)	59.1 7.6	0.0780 329.1 389.2	0.0136	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.: 22L0170-04RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (23)
Acquired: 2023/01/06 - 22:34

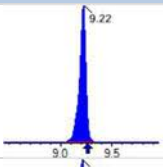
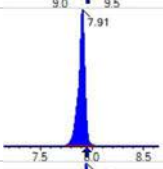
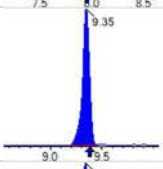
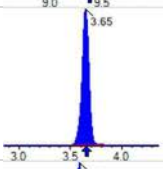
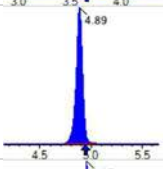
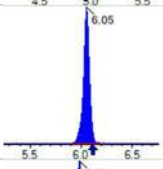
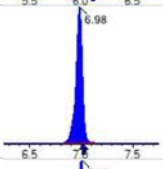
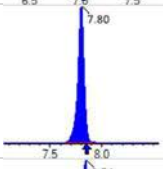
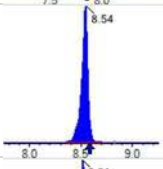
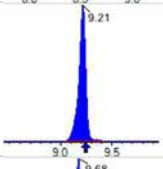
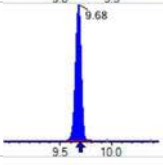
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 153345	(3.65 , N/A) (N/A , 0.00 , N/A)	543.2	N/A	0.9072 [1.0000]	90.7% { 93.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 282208	(6.06 , N/A) (N/A , -0.05 , N/A)	442.4	N/A	0.9449 [1.0000]	94.5% { 93.7% }			
13C4_PFOA_IIS	(417.0 / 372.0) 300271	(7.80 , N/A) (N/A , -0.05 , N/A)	481.5	N/A	0.9076 [1.0000]	90.8% { 108.1% }			
13C5_PFNA_IIS	(468.0 / 423.0) 225331	(8.54 , N/A) (N/A , -0.04 , N/A)	372.0	N/A	0.8082 [1.0000]	80.8% { 88.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (23)
Acquired: 2023/01/06 - 22:34

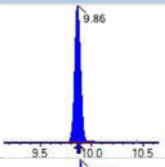
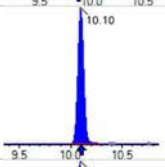
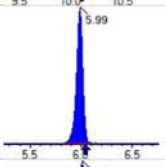
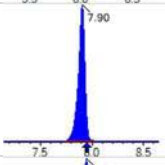
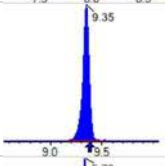
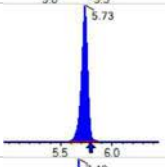
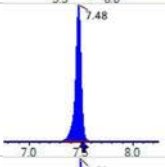
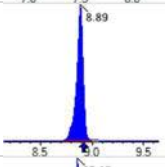
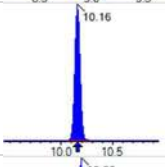
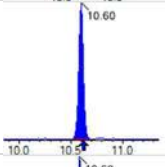
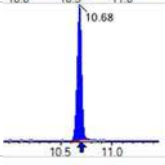
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 325549	(9.22 , N/A) (N/A , -0.03 , N/A)	527.9	N/A	1.0411 [1.0000]	104.1% { 114.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 497453	(7.91 , N/A) (N/A , -0.04 , N/A)	700.9	N/A	0.8470 [1.0000]	84.7% { 89.0% }			
13C4_PFOS_IIS	(503.0 / 79.9) 610627	(9.35 , N/A) (N/A , -0.04 , N/A)	438.4	N/A	1.0344 [1.0000]	103.4% { 127.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1147429	(3.65 , N/A) (N/A , 0.00 , N/A)	651.4	N/A	7.5122 [8.0000]	93.9% { 92.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 812697	(4.89 , N/A) (N/A , -0.06 , N/A)	618.3	N/A	3.5597 [4.0000]	89.0% { 96.5% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 583560	(6.05 , N/A) (N/A , -0.05 , N/A)	607.9	N/A	1.9752 [2.0000]	98.8% { 98.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 527702	(6.98 , N/A) (N/A , -0.04 , N/A)	587.9	N/A	1.9946 [2.0000]	99.7% { 102.7% }			
13C8_PFOA_EIS	(421.0 / 376.0) 633492	(7.80 , N/A) (N/A , -0.05 , N/A)	660.1	N/A	2.1294 [2.0000]	106.5% { 106.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 223991	(8.54 , N/A) (N/A , -0.04 , N/A)	336.4	N/A	1.0012 [1.0000]	100.1% { 92.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 390927	(9.21 , N/A) (N/A , -0.03 , N/A)	365.3	N/A	1.0235 [1.0000]	102.3% { 108.8% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 502282	(9.68 , N/A) (N/A , -0.01 , N/A)	372.7	N/A	0.9941 [1.0000]	99.4% { 124.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (23)
Acquired: 2023/01/06 - 22:34

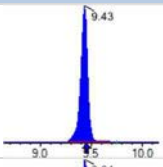
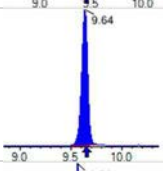
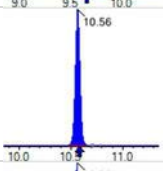
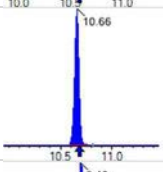
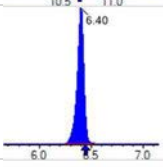
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 455941	(9.86 , N/A) (N/A , -0.01 , N/A)	460.3	N/A	0.8909 [1.0000]	89.1% { 108.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 302998	(10.10 , N/A) (N/A , -0.01 , N/A)	897.4	N/A	0.8275 [1.0000]	82.7% { 103.2% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1825118	(5.99 , N/A) (N/A , -0.05 , N/A)	630.1	N/A	2.6362 [2.0000]	131.8% { 113.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 938207	(7.90 , N/A) (N/A , -0.04 , N/A)	802.0	N/A	2.2789 [2.0000]	113.9% { 93.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1537683	(9.35 , N/A) (N/A , -0.04 , N/A)	493.9	N/A	2.0506 [2.0000]	102.5% { 127.6% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 733776	(5.73 , N/A) (N/A , -0.05 , N/A)	710.0	N/A	6.2538 [4.0000]	156.3% { 136.4% }			S2,
13C2_6:2FTS_EIS	(429.0 / 81.0) 1003196	(7.48 , N/A) (N/A , -0.04 , N/A)	779.5	N/A	6.1308 [4.0000]	153.3% { 158.8% }			S2,
13C2_8:2FTS_EIS	(529.0 / 81.0) 850507	(8.89 , N/A) (N/A , -0.03 , N/A)	466.3	N/A	5.0921 [4.0000]	127.3% { 125.4% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1007896	(10.16 , N/A) (N/A , 0.00 , N/A)	824.3	N/A	1.2060 [2.0000]	60.3% { 67.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 105786	(10.60 , N/A) (N/A , -0.02 , N/A)	478.7	N/A	0.5729 [2.0000]	28.6% { 37.9% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 80480	(10.68 , N/A) (N/A , -0.02 , N/A)	38.0	N/A	0.4791 [2.0000]	24.0% { 32.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (23)
Acquired: 2023/01/06 - 22:34

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 1065596	(9.43 , N/A) (N/A , -0.02 , N/A)	346.1	N/A	4.0957 [4.0000]	102.4% { 118.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 878971	(9.64 , N/A) (N/A , -0.02 , N/A)	136.5	N/A	3.8941 [4.0000]	97.4% { 120.8% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 218869	(10.56 , N/A) (N/A , -0.02 , N/A)	968.6	N/A	7.3574 [20.0000]	36.8% { 40.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 95374	(10.66 , N/A) (N/A , -0.02 , N/A)	863.6	N/A	7.0331 [20.0000]	35.2% { 46.6% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1274376	(6.40 , N/A) (N/A , -0.04 , N/A)	684.5	N/A	7.8292 [8.0000]	97.9% { 102.8% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW06-WGN01LF-2212W3

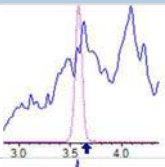
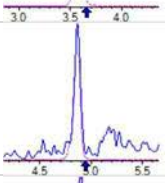
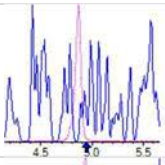
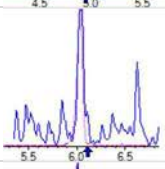
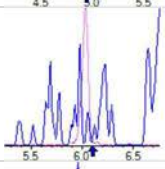
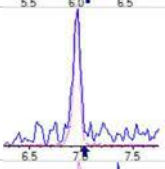
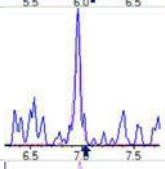
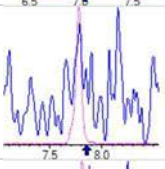
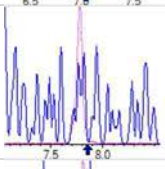
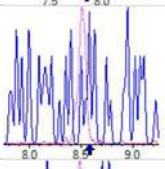
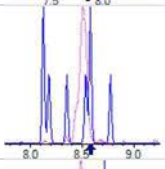
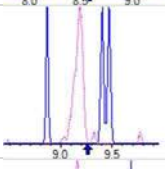
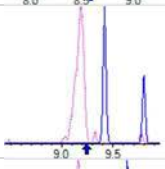
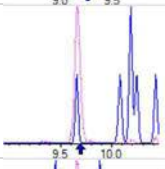
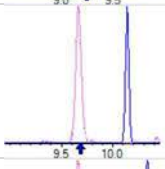
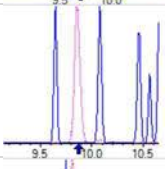
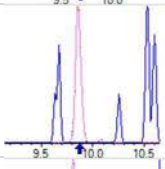
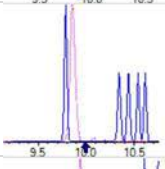
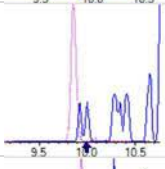
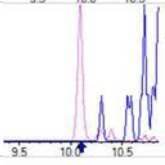
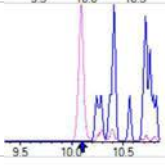
Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0170-04RE3	File ID:	S2023-01-06B (24)
Sampled:	12/22/22 11:40	Prepared:	12/28/22 10:49	Analyzed:	01/06/23 22:47
Solids:		Preparation:	1633	Dilution:	10
Initial/Final:	524.52 g / 2 ml			Instrument:	Saphira
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (24)
Acquired: 2023/01/06 - 22:47

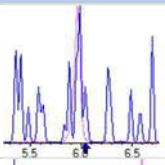
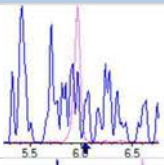
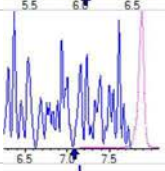
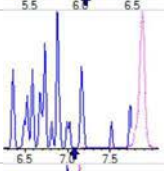
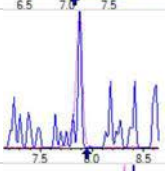
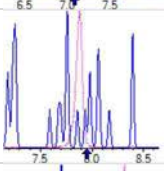
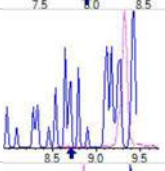
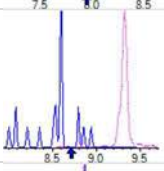
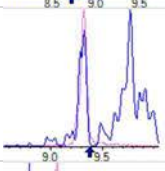
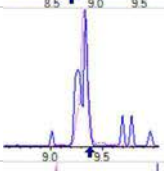
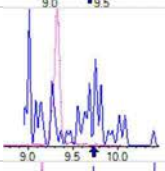
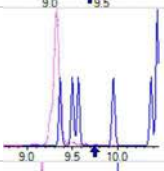
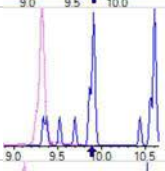
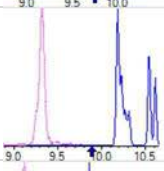
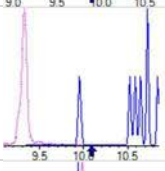
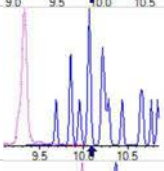
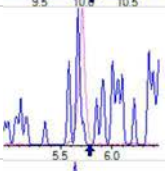
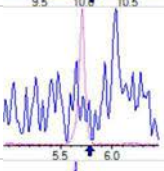
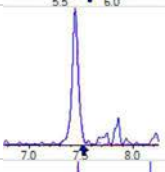
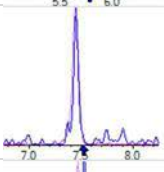
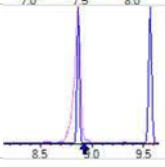
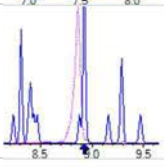
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000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

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (24)
Acquired: 2023/01/06 - 22:47

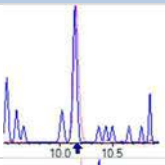
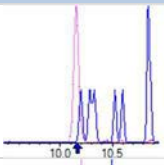
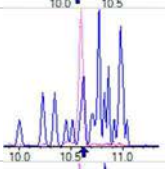
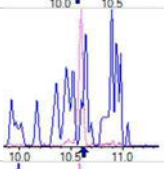
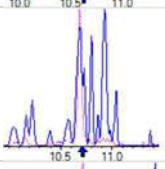
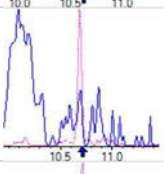
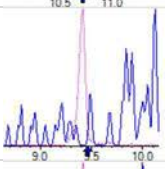
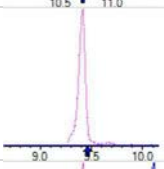
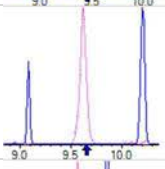
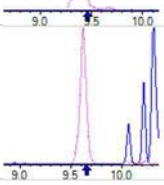
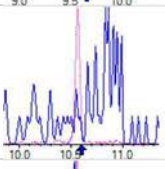
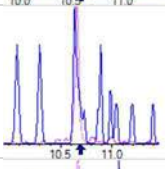
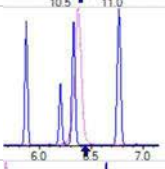
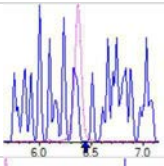
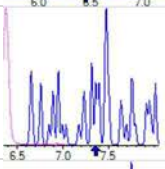
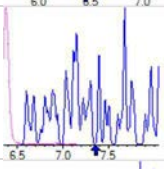
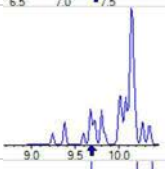
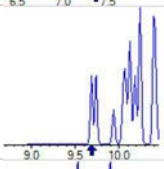
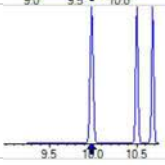
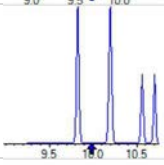
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeS	(349.0 / 80.0) N/A (349.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxS	(399.0 / 80.0) N/A (399.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpS	(449.0 / 80.0) N/A (449.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOS	(499.0 / 80.0) 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.: 22L0170-04RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (24)
Acquired: 2023/01/06 - 22:47

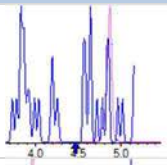
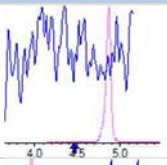
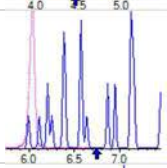
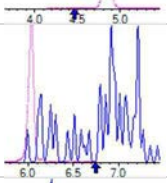
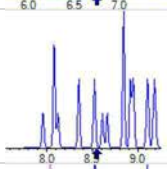
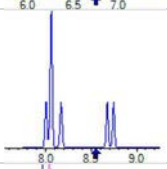
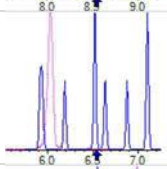
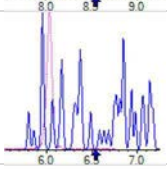
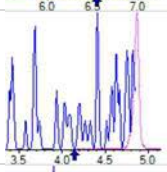
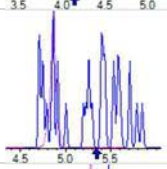
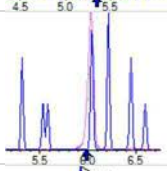
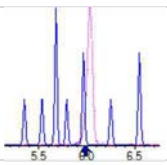
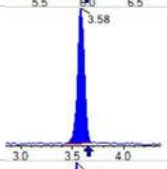
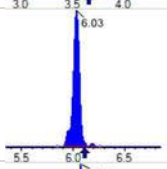
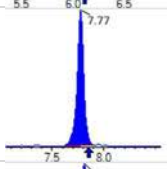
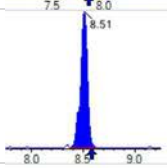
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)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

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (24)
Acquired: 2023/01/06 - 22:47

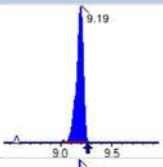
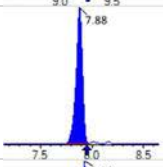
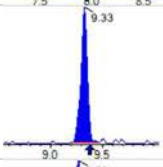
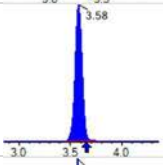
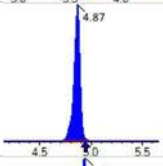
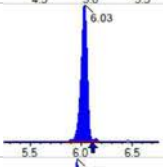
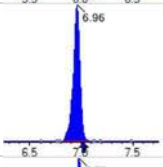
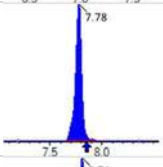
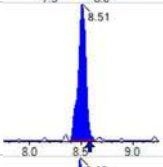
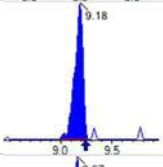
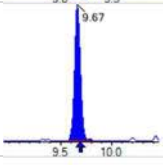
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) N/A (341.0 / 217.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
7:3FTCA	(441.0 / 317.0) N/A (441.0 / 337.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFEESA	(315.0 / 135.0) N/A (315.0 / 83.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFMPA	(229.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFMBA	(279.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NFDHA	(295.0 / 201.0) N/A (295.0 / 85.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 14150	(3.58 , N/A) (N/A , -0.07 , N/A)	221.2	N/A	0.8372 [1.0000]	83.7% { 8.6% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 26553	(6.03 , N/A) (N/A , -0.07 , N/A)	251.6	N/A	0.8890 [1.0000]	88.9% { 8.8% }			
13C4_PFOA_IIS	(417.0 / 372.0) 27462	(7.77 , N/A) (N/A , -0.08 , N/A)	244.5	N/A	0.8301 [1.0000]	83.0% { 9.9% }			
13C5_PFNA_IIS	(468.0 / 423.0) 25330	(8.51 , N/A) (N/A , -0.07 , N/A)	293.8	N/A	0.9085 [1.0000]	90.9% { 10.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (24)
Acquired: 2023/01/06 - 22:47

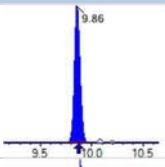
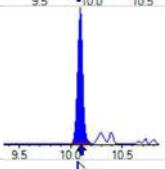
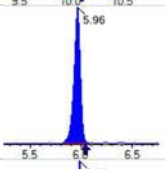
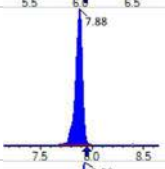
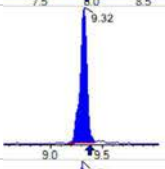
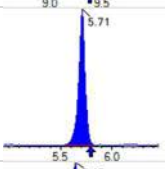
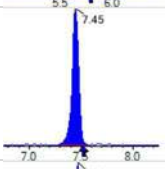
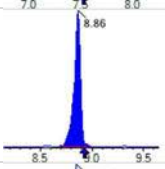
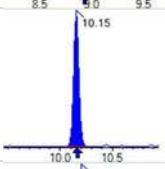
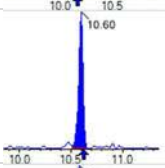
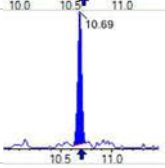
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 31539	(9.19 , N/A) (N/A , -0.06 , N/A)	402.9	N/A	1.0086 [1.0000]	100.9% { 11.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 49132	(7.88 , N/A) (N/A , -0.07 , N/A)	362.0	N/A	0.8366 [1.0000]	83.7% { 8.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 54594	(9.33 , N/A) (N/A , -0.06 , N/A)	135.3	N/A	0.9248 [1.0000]	92.5% { 11.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 108280	(3.58 , N/A) (N/A , -0.07 , N/A)	725.1	N/A	0.7682 [0.8000]	96.0% { 8.7% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 84025	(4.87 , N/A) (N/A , -0.08 , N/A)	721.2	N/A	0.3911 [0.4000]	97.8% { 10.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 51424	(6.03 , N/A) (N/A , -0.07 , N/A)	313.4	N/A	0.1850 [0.2000]	92.5% { 8.6% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 52552	(6.96 , N/A) (N/A , -0.07 , N/A)	317.2	N/A	0.2111 [0.2000]	105.6% { 10.2% }			
13C8_PFOA_EIS	(421.0 / 376.0) 64932	(7.78 , N/A) (N/A , -0.07 , N/A)	483.7	N/A	0.2387 [0.2000]	119.3% { 10.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 25834	(8.51 , N/A) (N/A , -0.07 , N/A)	168.2	N/A	0.1027 [0.1000]	102.7% { 10.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 30524	(9.18 , N/A) (N/A , -0.06 , N/A)	120.8	N/A	0.0825 [0.1000]	82.5% { 8.5% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 39001	(9.67 , N/A) (N/A , -0.02 , N/A)	155.5	N/A	0.0797 [0.1000]	79.7% { 9.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (24)
Acquired: 2023/01/06 - 22:47

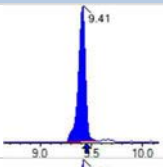
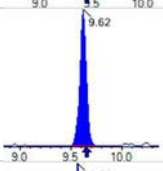
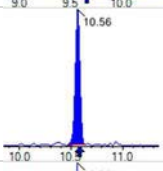
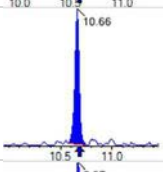
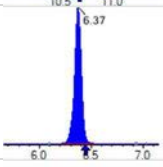
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 62037	(9.86 , N/A) (N/A , -0.01 , N/A)	420.4	N/A	0.1251 [0.1000]	125.1% { 14.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 28788	(10.09 , N/A) (N/A , -0.01 , N/A)	290.7	N/A	0.0812 [0.1000]	81.2% { 9.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 156236	(5.96 , N/A) (N/A , -0.07 , N/A)	410.6	N/A	0.2285 [0.2000]	114.2% { 9.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 92638	(7.88 , N/A) (N/A , -0.07 , N/A)	512.6	N/A	0.2278 [0.2000]	113.9% { 9.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 134499	(9.32 , N/A) (N/A , -0.06 , N/A)	196.0	N/A	0.2006 [0.2000]	100.3% { 11.2% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 64473	(5.71 , N/A) (N/A , -0.07 , N/A)	352.2	N/A	0.5564 [0.4000]	139.1% { 12.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 71537	(7.45 , N/A) (N/A , -0.07 , N/A)	312.3	N/A	0.4426 [0.4000]	110.7% { 11.3% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 88603	(8.86 , N/A) (N/A , -0.06 , N/A)	283.5	N/A	0.5371 [0.4000]	134.3% { 13.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 95942	(10.15 , N/A) (N/A , -0.01 , N/A)	385.0	N/A	0.1284 [0.2000]	64.2% { 6.4% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 11117	(10.60 , N/A) (N/A , -0.02 , N/A)	160.0	N/A	0.0673 [0.2000]	33.7% { 4.0% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 7858	(10.69 , N/A) (N/A , -0.02 , N/A)	20.2	N/A	0.0523 [0.2000]	26.2% { 3.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0170-04RE3@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (24)
Acquired: 2023/01/06 - 22:47

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 106871	(9.41 , N/A) (N/A , -0.04 , N/A)	189.2	N/A	0.4594 [0.4000]	114.9% { 11.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 92442	(9.62 , N/A) (N/A , -0.03 , N/A)	85.2	N/A	0.4581 [0.4000]	114.5% { 12.7% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 21919	(10.56 , N/A) (N/A , -0.02 , N/A)	224.8	N/A	0.8241 [2.0000]	41.2% { 4.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 8931	(10.66 , N/A) (N/A , -0.02 , N/A)	122.8	N/A	0.7366 [2.0000]	36.8% { 4.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 117206	(6.37 , N/A) (N/A , -0.07 , N/A)	407.2	N/A	0.7653 [0.8000]	95.7% { 9.5% }			

QUALITY CONTROL

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0170
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW17D-WGN01LF-2212W3 (22L0170-01RE2) ng/l	Lab File ID: S2023-01-06B (17)			Analyzed: 01/06/23 21:16
13C4-PFBA	29.2	87.8	20 - 150	
13C5-PFPEA	14.6	112	20 - 150	
13C5-PFHXA	7.31	110	20 - 150	
13C4-PFHPA	7.31	116	20 - 150	
13C8-PFOA	7.31	107	20 - 150	
13C9-PFNA	3.65	107	20 - 150	
13C6-PFDA	3.65	90.5	20 - 150	
13C7-PFUnA	3.65	138	20 - 150	
13C2-PFDOA	3.65	126	20 - 150	
13C2-PFTEDA	3.65	118	20 - 150	
13C3-PFBS	7.31	130	20 - 150	
13C3-PFHXS	7.31	114	20 - 150	
13C8-PFOS	7.31	107	20 - 150	
13C2-4:2FTS	14.6	190	20 - 150	*
13C2-6:2FTS	14.6	170	20 - 150	*
13C2-8:2FTS	14.6	136	20 - 150	
13C8-PFOSA	7.31	91.0	20 - 150	
D5-NETFOSA	7.31	50.2	20 - 150	
D3-NMEFOSA	7.31	59.2	20 - 150	
D3-NMEFOSAA	14.6	65.3	20 - 150	
D5-NETFOSAA	14.6	137	20 - 150	
D7-NMEFOSE	73.1	59.4	20 - 150	
D9-NETFOSE	73.1	66.4	20 - 150	
13C3-HFPO-DA	29.2	94.2	20 - 150	
AF-RHMW17D-WGN01LF-2212W3 (22L0170-01RE3) ng/l	Lab File ID: S2023-01-06B (18)			Analyzed: 01/06/23 21:29
13C2-4:2FTS	14.6	180	20 - 150	*
13C2-6:2FTS	14.6	119	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0170
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW17-WGN01LF-2212W3 (22L0170-02RE2) ng/L Lab File ID: S2023-01-06B (19)				Analyzed: 01/06/23 21:42
13C4-PFBA	30.7	96.7	20 - 150	
13C5-PFPEA	15.3	109	20 - 150	
13C5-PFHXA	7.67	105	20 - 150	
13C4-PFHPA	7.67	103	20 - 150	
13C8-PFOA	7.67	106	20 - 150	
13C9-PFNA	3.83	114	20 - 150	
13C6-PFDA	3.83	114	20 - 150	
13C7-PFUnA	3.83	122	20 - 150	
13C2-PFDOA	3.83	94.0	20 - 150	
13C2-PFTEDA	3.83	75.1	20 - 150	
13C3-PFBS	7.67	118	20 - 150	
13C3-PFHXS	7.67	111	20 - 150	
13C8-PFOS	7.67	105	20 - 150	
13C2-4:2FTS	15.3	175	20 - 150	*
13C2-6:2FTS	15.3	121	20 - 150	
13C2-8:2FTS	15.3	134	20 - 150	
13C8-PFOSA	7.67	81.5	20 - 150	
D5-NETFOSA	7.67	52.3	20 - 150	
D3-NMEFOSA	7.67	50.7	20 - 150	
D3-NMEFOSAA	15.3	130	20 - 150	
D5-NETFOSAA	15.3	126	20 - 150	
D7-NMEFOSE	76.7	56.8	20 - 150	
D9-NETFOSE	76.7	59.3	20 - 150	
13C3-HFPO-DA	30.7	112	20 - 150	
AF-RHMW17-WGN01LF-2212W3 (22L0170-02RE3) ng/L Lab File ID: S2023-01-06B (20)				Analyzed: 01/06/23 21:55
13C2-4:2FTS	15.3	144	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0170
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW04-WGN01LF-2212W3 (22L0170-03RE2) ng/L Lab File ID: S2023-01-06B (21)				Analyzed: 01/06/23 22:08
13C4-PFBA	30.8	99.0	20 - 150	
13C5-PFPEA	15.4	101	20 - 150	
13C5-PFHXA	7.70	109	20 - 150	
13C4-PFHPA	7.70	105	20 - 150	
13C8-PFOA	7.70	105	20 - 150	
13C9-PFNA	3.85	99.6	20 - 150	
13C6-PFDA	3.85	112	20 - 150	
13C7-PFUnA	3.85	123	20 - 150	
13C2-PFDOA	3.85	113	20 - 150	
13C2-PFTEDA	3.85	100	20 - 150	
13C3-PFBS	7.70	119	20 - 150	
13C3-PFHXS	7.70	107	20 - 150	
13C8-PFOS	7.70	105	20 - 150	
13C2-4:2FTS	15.4	152	20 - 150	*
13C2-6:2FTS	15.4	124	20 - 150	
13C2-8:2FTS	15.4	119	20 - 150	
13C8-PFOSA	7.70	70.3	20 - 150	
D5-NETFOSA	7.70	37.4	20 - 150	
D3-NMEFOSA	7.70	39.0	20 - 150	
D3-NMEFOSAA	15.4	134	20 - 150	
D5-NETFOSAA	15.4	123	20 - 150	
D7-NMEFOSE	77.0	36.6	20 - 150	
D9-NETFOSE	77.0	42.9	20 - 150	
13C3-HFPO-DA	30.8	105	20 - 150	
AF-RHMW04-WGN01LF-2212W3 (22L0170-03RE3) ng/L Lab File ID: S2023-01-06B (22)				Analyzed: 01/06/23 22:21
13C2-4:2FTS	15.4	137	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0170
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW06-WGN01LF-2212W3 (22L0170-04RE2) ng/L Lab File ID: S2023-01-06B (23)				Analyzed: 01/06/23 22:34
13C4-PFBA	30.5	93.9	20 - 150	
13C5-PFPEA	15.3	89.0	20 - 150	
13C5-PFHXA	7.63	98.8	20 - 150	
13C4-PFHPA	7.63	99.7	20 - 150	
13C8-PFOA	7.63	106	20 - 150	
13C9-PFNA	3.81	100	20 - 150	
13C6-PFDA	3.81	102	20 - 150	
13C7-PFUnA	3.81	99.4	20 - 150	
13C2-PFDOA	3.81	89.1	20 - 150	
13C2-PFTEDA	3.81	82.7	20 - 150	
13C3-PFBS	7.63	132	20 - 150	
13C3-PFHXS	7.63	114	20 - 150	
13C8-PFOS	7.63	103	20 - 150	
13C2-4:2FTS	15.3	156	20 - 150	*
13C2-6:2FTS	15.3	153	20 - 150	*
13C2-8:2FTS	15.3	127	20 - 150	
13C8-PFOSA	7.63	60.3	20 - 150	
D5-NETFOSA	7.63	24.0	20 - 150	
D3-NMEFOSA	7.63	28.6	20 - 150	
D3-NMEFOSAA	15.3	102	20 - 150	
D5-NETFOSAA	15.3	97.4	20 - 150	
D7-NMEFOSE	76.3	36.8	20 - 150	
D9-NETFOSE	76.3	35.2	20 - 150	
13C3-HFPO-DA	30.5	97.9	20 - 150	
AF-RHMW06-WGN01LF-2212W3 (22L0170-04RE3) ng/L Lab File ID: S2023-01-06B (24)				Analyzed: 01/06/23 22:47
13C2-4:2FTS	15.3	139	20 - 150	
13C2-6:2FTS	15.3	111	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0170
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
Blank (BCA0031-BLK1) ng/L	Lab File ID: S2023-01-06B (10)			Analyzed: 01/06/23 19:46
13C4-PFBA	32.0	103	20 - 150	
13C5-PFPEA	16.0	98.1	20 - 150	
13C5-PFHXA	8.00	97.9	20 - 150	
13C4-PFHPA	8.00	96.2	20 - 150	
13C8-PFOA	8.00	119	20 - 150	
13C9-PFNA	4.00	105	20 - 150	
13C6-PFDA	4.00	123	20 - 150	
13C7-PFUnA	4.00	134	20 - 150	
13C2-PFDOA	4.00	112	20 - 150	
13C2-PFTEDA	4.00	110	20 - 150	
13C3-PFBS	8.00	106	20 - 150	
13C3-PFHXS	8.00	105	20 - 150	
13C8-PFOS	8.00	101	20 - 150	
13C2-4:2FTS	16.0	145	20 - 150	
13C2-6:2FTS	16.0	111	20 - 150	
13C2-8:2FTS	16.0	113	20 - 150	
13C8-PFOSA	8.00	56.2	20 - 150	
D5-NETFOSA	8.00	25.5	20 - 150	
D3-NMEFOSA	8.00	25.1	20 - 150	
D3-NMEFOSAA	16.0	113	20 - 150	
D5-NETFOSAA	16.0	125	20 - 150	
D7-NMEFOSE	80.0	35.4	20 - 150	
D9-NETFOSE	80.0	37.1	20 - 150	
13C3-HFPO-DA	32.0	99.4	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0170
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
LCS (BCA0031-BS1) ng/L	Lab File ID: S2023-01-06B (11)			Analyzed: 01/06/23 19:59
13C4-PFBA	32.0	101	20 - 150	
13C5-PFPEA	16.0	102	20 - 150	
13C5-PFHXA	8.00	99.3	20 - 150	
13C4-PFHPA	8.00	103	20 - 150	
13C8-PFOA	8.00	101	20 - 150	
13C9-PFNA	4.00	106	20 - 150	
13C6-PFDA	4.00	101	20 - 150	
13C7-PFUnA	4.00	88.5	20 - 150	
13C2-PFDOA	4.00	95.7	20 - 150	
13C2-PFTEDA	4.00	89.0	20 - 150	
13C3-PFBS	8.00	113	20 - 150	
13C3-PFHXS	8.00	103	20 - 150	
13C8-PFOS	8.00	100	20 - 150	
13C2-4:2FTS	16.0	136	20 - 150	
13C2-6:2FTS	16.0	125	20 - 150	
13C2-8:2FTS	16.0	118	20 - 150	
13C8-PFOSA	8.00	55.8	20 - 150	
D5-NETFOSA	8.00	19.0	20 - 150	*
D3-NMEFOSA	8.00	20.7	20 - 150	
D3-NMEFOSAA	16.0	115	20 - 150	
D5-NETFOSAA	16.0	118	20 - 150	
D7-NMEFOSE	80.0	30.9	20 - 150	
D9-NETFOSE	80.0	27.0	20 - 150	
13C3-HFPO-DA	32.0	97.3	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0170
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
MRL Check (BCA0031-MRL1) ng/L	Lab File ID: S2023-01-06B (12)			Analyzed: 01/06/23 20:12
13C4-PFBA	32.0	100	20 - 150	
13C5-PFPEA	16.0	101	20 - 150	
13C5-PFHXA	8.00	107	20 - 150	
13C4-PFHPA	8.00	113	20 - 150	
13C8-PFOA	8.00	105	20 - 150	
13C9-PFNA	4.00	94.8	20 - 150	
13C6-PFDA	4.00	89.3	20 - 150	
13C7-PFUnA	4.00	105	20 - 150	
13C2-PFDOA	4.00	96.4	20 - 150	
13C2-PFTEDA	4.00	86.5	20 - 150	
13C3-PFBS	8.00	98.2	20 - 150	
13C3-PFHXS	8.00	116	20 - 150	
13C8-PFOS	8.00	105	20 - 150	
13C2-4:2FTS	16.0	150	20 - 150	
13C2-6:2FTS	16.0	115	20 - 150	
13C2-8:2FTS	16.0	138	20 - 150	
13C8-PFOSA	8.00	45.2	20 - 150	
D5-NETFOSA	8.00	25.9	20 - 150	
D3-NMEFOSA	8.00	28.5	20 - 150	
D3-NMEFOSAA	16.0	127	20 - 150	
D5-NETFOSAA	16.0	127	20 - 150	
D7-NMEFOSE	80.0	37.5	20 - 150	
D9-NETFOSE	80.0	36.3	20 - 150	
13C3-HFPO-DA	32.0	108	20 - 150	

METHOD BLANK SUMMARY

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Blank ID:	BCA0031-BLK1	Batch:	BCA0031
Prepared:	01/04/2023 07:38		

Client Sample ID	Laboratory Sample ID	Lab File ID	Time Analyzed
LCS	BCA0031-BS1	S2023-01-06B (11)	19:59
MRL Check	BCA0031-MRL1	S2023-01-06B (12)	20:12
AF-RHMW17D-WGN01LF-2212W3	22L0170-01RE2	S2023-01-06B (17)	21:16
DF 10	22L0170-01RE3	S2023-01-06B (18)	21:29
AF-RHMW17-WGN01LF-2212W3	22L0170-02RE2	S2023-01-06B (19)	21:42
DF 10	22L0170-02RE3	S2023-01-06B (20)	21:55
AF-RHMW04-WGN01LF-2212W3	22L0170-03RE2	S2023-01-06B (21)	22:08
DF 10	22L0170-03RE3	S2023-01-06B (22)	22:21
AF-RHMW06-WGN01LF-2212W3	22L0170-04RE2	S2023-01-06B (23)	22:34
DF 10	22L0170-04RE3	S2023-01-06B (24)	22:47

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BCA0031-BLK1	File ID:	S2023-01-06B (10)
Sampled:		Prepared:	01/04/23 07:38	Analyzed:	01/06/23 19:46
Solids:		Preparation:	1633	Dilution:	1
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001
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	0.0550 J	0.40	0.20	0.055	IR2, J
PFHPA	0.20 U	0.40	0.20	0.041	U
PFOA	0.20 U	0.40	0.20	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	0.20 U	0.40	0.20	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	0.20 U	0.40	0.20	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	0.500	0.40	0.20	0.064	B, MI4
PFNS	0.20 U	0.40	0.20	0.12	U
PFDS	0.20 U	0.40	0.20	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:	22L0170
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BCA0031-BLK1	File ID:	S2023-01-06B (10)
Sampled:		Prepared:	01/04/23 07:38	Analyzed:	01/06/23 19:46
Solids:		Preparation:	1633	Dilution:	1
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001
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:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Preparation:	1633
Batch:	BCA0031	Laboratory ID:	BCA0031-BS1
Column:			

ANALYTE	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC.	QC LIMITS REC.
PFBA	16.0	15.3	95.8	40 - 150
PFPEA	8.00	7.66	95.8	40 - 150
PFHXA	4.00	3.72	93.1	40 - 150
PFHPA	4.00	3.67	91.8	40 - 150
PFOA	4.00	4.14	103	40 - 150
PFNA	4.00	3.99	99.6	40 - 150
PFDA	4.00	3.95	98.7	40 - 150
PFUnA	4.00	3.94	98.4	40 - 150
PFDOA	4.00	4.08	102	40 - 150
PFTRDA	4.00	3.60	90.1	40 - 150
PFTEDA	4.00	3.50	87.4	40 - 150
PFBS	3.54	3.40	96.1	40 - 150
PFPES	3.76	3.69	98.2	40 - 150
PFHXS	3.66	3.32	90.6	40 - 150
PFHPS	3.82	3.32	87.0	40 - 150
PFOS	3.72	3.91	105	40 - 150
PFNS	3.84	3.16	82.3	40 - 150
PFDS	3.86	3.62	93.9	40 - 150
PFDOS	3.88	4.17	108	40 - 150
4:2FTS	15.0	15.4	103	40 - 150
6:2FTS	15.2	14.7	96.5	40 - 150
8:2FTS	15.4	15.3	99.6	40 - 150
PFOSA	4.00	4.20	105	40 - 150
NMeFOSA	16.0	18.1	113	40 - 150
NEtFOSA	16.0	15.1	94.6	40 - 150
NMeFOSAA	4.00	3.17	79.3	40 - 150
NEtFOSAA	4.00	3.67	91.7	40 - 150
NMeFOSE	16.0	15.6	97.4	40 - 150
NEtFOSE	16.0	17.8	111	40 - 150
HFPO-DA	8.00	7.09	88.6	40 - 150
ADONA	7.56	7.56	100	40 - 150
PFEESA	7.12	7.38	104	40 - 150
PFMPA	8.00	6.86	85.7	40 - 150
PFMBA	8.00	7.28	91.0	40 - 150

LCS / LCS DUPLICATE RECOVERY

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Preparation:	1633
Batch:	BCA0031	Laboratory ID:	BCA0031-BS1
Column:			

ANALYTE	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC.	QC LIMITS REC.
NFDHA	8.00	6.86	85.8	40 - 150
9CL-PF3ONS	7.48	7.44	99.5	40 - 150
11CL-PF3OUDS	7.56	8.84	117	40 - 150
3:3FTCA	16.0	11.3	70.9	40 - 150
5:3FTCA	16.0	14.5	90.6	40 - 150
7:3FTCA	16.0	13.7	85.8	40 - 150

CALIBRATION SUMMARY

Chemist:ABK
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 = 0.46716 x (std. dev. = 0.03134) (weighting: None)	%RSE=6.7
PFPeA	(263.0 / 219.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.47477 x (std. dev. = 0.02347) (weighting: None)	%RSE=4.9
PFHxA	(313.0 / 269.0)	13C5_PFHxA_EIS	1.0000	1.0000	y = 0.49617 x (std. dev. = 0.01601) (weighting: None)	%RSE=3.2
PFHpA	(363.0 / 319.0)	13C4_PFHpA_EIS	1.0000	1.0000	y = 0.52394 x (std. dev. = 0.02747) (weighting: None)	%RSE=5.2
PFOA	(413.0 / 369.0)	13C8_PFOA_EIS	1.0000	1.0000	y = 0.53264 x (std. dev. = 0.03029) (weighting: None)	%RSE=5.7
PFNA	(463.0 / 419.0)	13C9_PFNA_EIS	1.0000	1.0000	y = 0.96515 x (std. dev. = 0.11510) (weighting: None)	%RSE=11.9
PFDA	(513.0 / 469.0)	13C6_PFDA_EIS	1.0000	1.0000	y = 0.99166 x (std. dev. = 0.06898) (weighting: None)	%RSE=7.0
PFUnA	(563.0 / 519.0)	13C7_PFUnA_EIS	1.0000	1.0000	y = 0.91260 x (std. dev. = 0.06087) (weighting: None)	%RSE=6.7
PFDoA	(613.0 / 569.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.95836 x (std. dev. = 0.14827) (weighting: None)	%RSE=15.5
PFTrDA	(663.0 / 619.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.83621 x (std. dev. = 0.14762) (weighting: None)	%RSE=17.7
PFTeDA	(713.0 / 669.0)	13C2_PFTeDA_EIS	1.0000	1.0000	y = 1.01157 x (std. dev. = 0.10486) (weighting: None)	%RSE=10.4
PFBS	(299.0 / 80.0)	13C3_PFBS_EIS	1.0000	0.8847	y = 0.28221 x (std. dev. = 0.01814) (weighting: None)	%RSE=6.4
PFPeS	(349.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9384	y = 0.92269 x (std. dev. = 0.08680) (weighting: None)	%RSE=9.4
PFHxS	(399.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9110	y = 0.78894 x (std. dev. = 0.05344) (weighting: None)	%RSE=6.8
PFHpS	(449.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9514	y = 0.48130 x (std. dev. = 0.03657) (weighting: None)	%RSE=7.6
PFOS	(499.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9275	y = 0.54001 x (std. dev. = 0.03944) (weighting: None)	%RSE=7.3
PFNS	(549.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9599	y = 0.63351 x (std. dev. = 0.04916) (weighting: None)	%RSE=7.8
PFDS	(599.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9631	y = 0.76856 x (std. dev. = 0.06549) (weighting: None)	%RSE=8.5
PFDoS	(699.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9696	y = 0.36436 x (std. dev. = 0.02693) (weighting: None)	%RSE=7.4
4:2FTS	(327.0 / 307.0)	13C2_4:2FTS_EIS	4.0000	0.9345	y = 3.17780 x (std. dev. = 0.28502) (weighting: None)	%RSE=9.0
6:2FTS	(427.0 / 407.0)	13C2_6:2FTS_EIS	4.0000	0.9490	y = 1.52371 x (std. dev. = 0.17052) (weighting: None)	%RSE=11.2
8:2FTS	(527.0 / 507.0)	13C2_8:2FTS_EIS	4.0000	0.9583	y = 1.49481 x (std. dev. = 0.24064) (weighting: None)	%RSE=16.1
PFOSA	(498.0 / 78.0)	13C8_PFOSA_EIS	1.0000	1.0000	y = 0.57985 x (std. dev. = 0.05759) (weighting: None)	%RSE=9.9
NMeFOSA	(512.0 / 219.0)	D3_NMeFOSA_EIS	4.0000	1.0000	y = 1.94281 x (std. dev. = 0.24042) (weighting: None)	%RSE=12.4
NEtFOSA	(526.0 / 219.0)	D5_NEtFOSA_EIS	4.0000	1.0000	y = 1.98380 x (std. dev. = 0.16643) (weighting: None)	%RSE=8.4
NMeFOSAA	(570.0 / 419.0)	D3_MeFOSAA_EIS	1.0000	1.0000	y = 0.22686 x (std. dev. = 0.02481) (weighting: None)	%RSE=10.9
NEtFOSAA	(584.0 / 419.0)	D5_EtFOSAA_EIS	1.0000	1.0000	y = 0.24645 x (std. dev. = 0.03357) (weighting: None)	%RSE=13.6
NMeFOSE	(616.0 / 59.0)	D7_NMeFOSE_EIS	4.0000	1.0000	y = 0.24418 x (std. dev. = 0.01638) (weighting: None)	%RSE=6.7
NEtFOSE	(630.0 / 59.0)	D9_NEtFOSE_EIS	4.0000	1.0000	y = 1.15135e-4 x^2 + 0.10842 x + -0.00219 (r = 0.99964) (weighting: 1 / x)	%RSE=5.7
HFPO-DA	(285.0 / 169.0)	13C3_HFPODA_EIS	2.0000	1.0000	y = 0.17354 x (std. dev. = 0.01053) (weighting: None)	%RSE=6.1
ADONA	(377.0 / 85.0)	13C3_HFPODA_EIS	2.0000	0.9427	y = 0.65193 x (std. dev. = 0.06261) (weighting: None)	%RSE=9.6
9Cl-Pf3ONS	(531.0 / 351.0)	13C3_HFPODA_EIS	2.0000	0.9333	y = 1.76270 x (std. dev. = 0.18956) (weighting: None)	%RSE=10.8
11Cl-PF3OUDS	(631.0 / 451.0)	13C3_HFPODA_EIS	2.0000	0.9432	y = 1.00828 x (std. dev. = 0.10858) (weighting: None)	%RSE=10.8
3:3FTCA	(241.0 / 177.0)	13C5_PFPeA_EIS	4.0000	1.0000	y = 0.03264 x (std. dev. = 0.00312) (weighting: None)	%RSE=9.5
5:3FTCA	(341.0 / 236.7)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.30377 x (std. dev. = 0.01914) (weighting: None)	%RSE=6.3
7:3FTCA	(441.0 / 317.0)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.39571 x (std. dev. = 0.02270) (weighting: None)	%RSE=5.7
PFEESA	(315.0 / 135.0)	13C5_PFHxA_EIS	2.0000	0.8925	y = 0.81312 x (std. dev. = 0.07653) (weighting: None)	%RSE=9.4
PFMPA	(229.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.13866 x (std. dev. = 0.01119) (weighting: None)	%RSE=8.1
PFMBA	(279.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.39540 x (std. dev. = 0.02942) (weighting: None)	%RSE=7.4
NFDHA	(295.0 / 201.0)	13C5_PFHxA_EIS	2.0000	1.0000	y = 0.48708 x (std. dev. = 0.02917) (weighting: None)	%RSE=6.0
13C3_PFBA_IIS	(216.0 / 172.0)	13C3_PFBA_IIS	1.0000	1.0000	y = 215351.7500 x	%RSD=7.9
13C2_PFHxA_IIS	(315.0 / 270.0)	13C2_PFHxA_IIS	1.0000	1.0000	y = 379614.2469 x	%RSD=4.2
13C4_PFOA_IIS	(417.0 / 372.0)	13C4_PFOA_IIS	1.0000	1.0000	y = 360969.3315 x	%RSD=5.9
13C5_PFNA_IIS	(468.0 / 423.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 294062.4054 x	%RSD=6.3
13C2_PFDA_IIS	(515.0 / 470.1)	13C2_PFDA_IIS	1.0000	1.0000	y = 340648.6865 x	%RSD=6.9
18O2_PFHxS_IIS	(403.0 / 83.9)	18O2_PFHxS_IIS	1.0000	1.0000	y = 605087.5488 x	%RSD=4.0
13C4_PFOS_IIS	(503.0 / 79.9)	13C4_PFOS_IIS	1.0000	1.0000	y = 644809.1635 x	%RSD=8.9

Chemist:ABK
Instrument:Saphira
Type:Sciex Q5500

Quant Method:163

Analyte	(Q1 / Q3)	Internal Standard	Multiplier	AcidFactor	Function	Qualifier
13C4_PFBA_EIS	(217.0 / 172.0)	13C3_PFBA_IIS	8.0000	1.0000	y = 8.0318 x	%RSD=1.9
13C5_PFPeA_EIS	(268.0 / 223.0)	13C2_PFHxA_IIS	4.0000	1.0000	y = 3.0178 x	%RSD=6.7
13C5_PFHxA_EIS	(318.0 / 273.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 2.0466 x	%RSD=5.2
13C4_PFHpA_EIS	(367.0 / 322.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 1.7779 x	%RSD=6.1
13C8_PFOA_EIS	(421.0 / 376.0)	13C4_PFOA_IIS	2.0000	1.0000	y = 2.0463 x	%RSD=5.4
13C9_PFNA_EIS	(472.0 / 427.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 1.0390 x	%RSD=8.7
13C6_PFDA_EIS	(519.0 / 474.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.2079 x	%RSD=6.6
13C7_PFUnA_EIS	(570.0 / 525.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.4855 x	%RSD=13.8
13C2_PFDoA_EIS	(615.0 / 570.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.4824 x	%RSD=7.1
13C2_PFTeDA_EIS	(715.0 / 670.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 0.9393 x	%RSD=11.6
13C3_PFBS_EIS	(302.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 3.0269 x	%RSD=7.8
13C3_PFHxS_EIS	(402.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 1.6390 x	%RSD=6.8
13C8_PFOS_EIS	(507.0 / 80.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 2.4102 x	%RSD=9.3
13C2_4:2FTS_EIS	(329.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.6840 x	%RSD=9.9
13C2_6:2FTS_EIS	(429.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.9050 x	%RSD=10.4
13C2_8:2FTS_EIS	(529.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 1.1407 x	%RSD=12.2
13C8_PFOSA_EIS	(506.0 / 78.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 2.8131 x	%RSD=12.5
D3_NMeFOSA_EIS	(515.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.5320 x	%RSD=15.4
D5_NEtFOSA_EIS	(531.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.4872 x	%RSD=10.3
D3_MeFOSAA_EIS	(573.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 1.5167 x	%RSD=8.6
D5_EtFOSAA_EIS	(589.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 1.1761 x	%RSD=14.8
D7_NMeFOSE_EIS	(623.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 1.1622 x	%RSD=11.8
D9_NEtFOSE_EIS	(639.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 0.5359 x	%RSD=12.4
13C3_HFPODA_EIS	(287.0 / 169.0)	13C2_PFHxA_IIS	8.0000	1.0000	y = 4.5797 x	%RSD=6.0

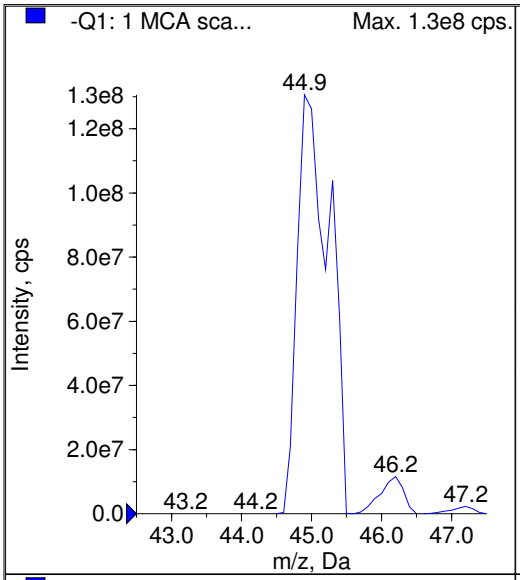
x= Concentration Analyte

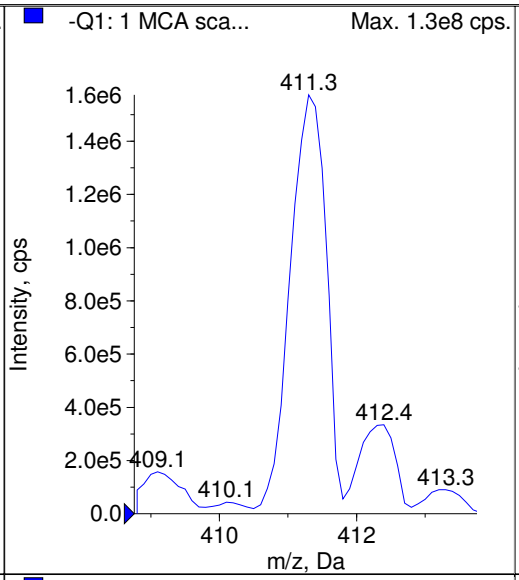
$$y = \text{Area Ratio} = \frac{\text{Area Analyte}}{\text{Area Internal Standard}}$$

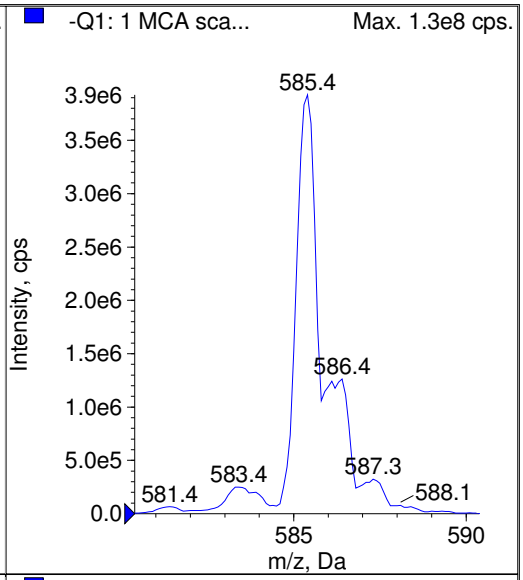
$$\text{Acid Factor} = \frac{\text{Moleculat weight Acid}}{\text{Molecular weight Salt}}$$

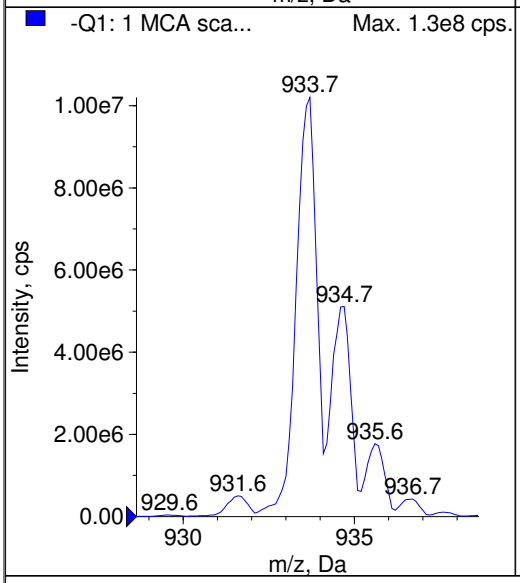
$$\text{Multiplier} = \frac{\text{Concentration of Analyte}}{\text{Concentration of PFOA}} \text{ in curve standard mix}$$

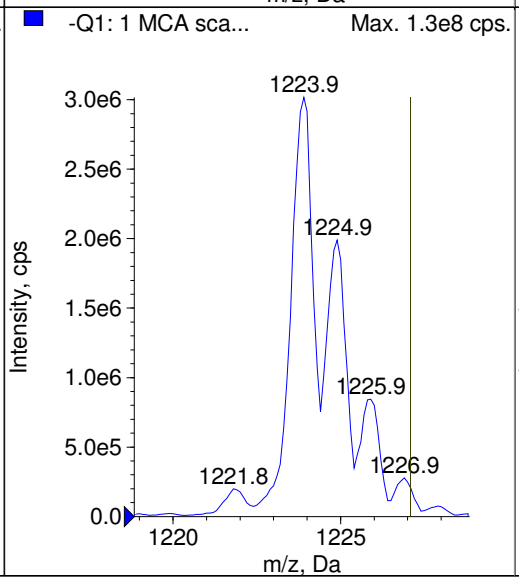
$$\text{Result } \left(\frac{\text{ng}}{\text{mL}}\right) = \text{x*Multiplier*Acid Factor}$$

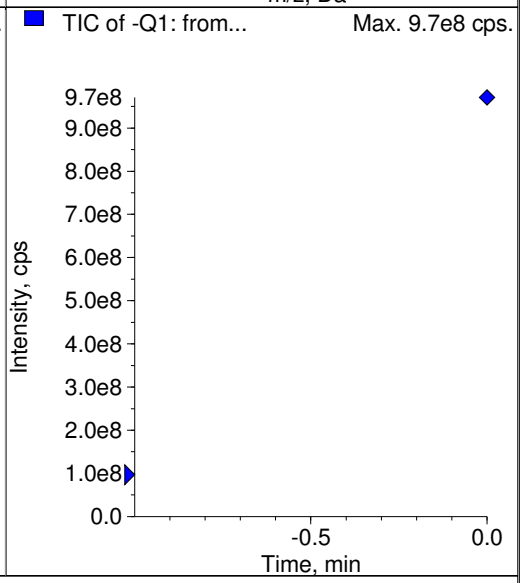






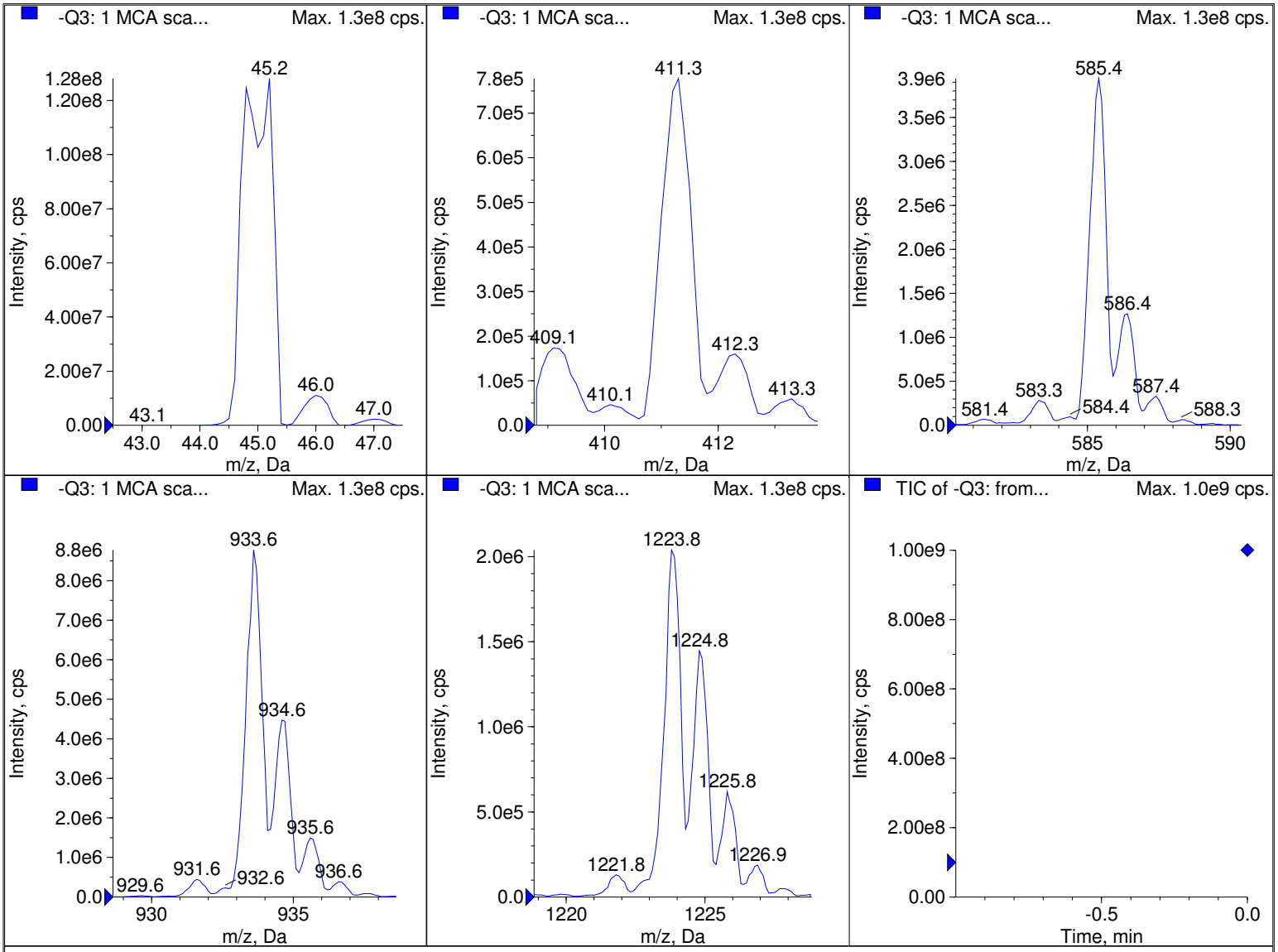






Peak List for " -Q1: 1 MCA scans from Sample 1 (TuneSampleID) of MT20221111142838.wiff (Turbo Spray)"

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



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

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

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 = 0.45883 x (std. dev. = 0.02841) (weighting: None)	%RSE=6.2
PFPeA	(263.0 / 219.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.47083 x (std. dev. = 0.02466) (weighting: None)	%RSE=5.2
PFHxA	(313.0 / 269.0)	13C5_PFHxA_EIS	1.0000	1.0000	y = 0.49110 x (std. dev. = 0.03239) (weighting: None)	%RSE=6.6
PFHpA	(363.0 / 319.0)	13C4_PFHpA_EIS	1.0000	1.0000	y = 0.51147 x (std. dev. = 0.04568) (weighting: None)	%RSE=8.9
PFOA	(413.0 / 369.0)	13C8_PFOA_EIS	1.0000	1.0000	y = 0.52760 x (std. dev. = 0.03430) (weighting: None)	%RSE=6.5
PFNA	(463.0 / 419.0)	13C9_PFNA_EIS	1.0000	1.0000	y = 0.97684 x (std. dev. = 0.09296) (weighting: None)	%RSE=9.5
PFDA	(513.0 / 469.0)	13C6_PFDA_EIS	1.0000	1.0000	y = 1.03364 x (std. dev. = 0.07910) (weighting: None)	%RSE=7.7
PFUnA	(563.0 / 519.0)	13C7_PFUnA_EIS	1.0000	1.0000	y = 0.89631 x (std. dev. = 0.10687) (weighting: None)	%RSE=11.9
PFDoA	(613.0 / 569.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.91228 x (std. dev. = 0.10581) (weighting: None)	%RSE=11.6
PFTrDA	(663.0 / 619.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.86644 x (std. dev. = 0.07486) (weighting: None)	%RSE=8.6
PFTeDA	(713.0 / 669.0)	13C2_PFTeDA_EIS	1.0000	1.0000	y = 0.99627 x (std. dev. = 0.15175) (weighting: None)	%RSE=15.2
PFBS	(299.0 / 80.0)	13C3_PFBS_EIS	1.0000	0.8847	y = 0.27994 x (std. dev. = 0.01563) (weighting: None)	%RSE=5.6
PFPeS	(349.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9384	y = 0.85685 x (std. dev. = 0.06272) (weighting: None)	%RSE=7.3
PFHxS	(399.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9110	y = 0.76673 x (std. dev. = 0.03363) (weighting: None)	%RSE=4.4
PFHpS	(449.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9514	y = 0.45836 x (std. dev. = 0.03372) (weighting: None)	%RSE=7.4
PFOS	(499.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9275	y = 0.54214 x + 0.02710 (r = 0.99874) (weighting: 1 / x)	%RSE=12.6
PFNS	(549.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9599	y = 0.62342 x (std. dev. = 0.07887) (weighting: None)	%RSE=12.7
PFDS	(599.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9631	y = 0.67958 x (std. dev. = 0.08102) (weighting: None)	%RSE=11.9
PFDoS	(699.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9696	y = 0.28801 x (std. dev. = 0.02001) (weighting: None)	%RSE=6.9
4:2FTS	(327.0 / 307.0)	13C2_4:2FTS_EIS	4.0000	0.9345	y = 3.23076 x (std. dev. = 0.31899) (weighting: None)	%RSE=9.9
6:2FTS	(427.0 / 407.0)	13C2_6:2FTS_EIS	4.0000	0.9490	y = 1.52524 x (std. dev. = 0.14699) (weighting: None)	%RSE=9.6
8:2FTS	(527.0 / 507.0)	13C2_8:2FTS_EIS	4.0000	0.9583	y = 1.44949 x (std. dev. = 0.18187) (weighting: None)	%RSE=12.5
PFOSA	(498.0 / 78.0)	13C8_PFOSA_EIS	1.0000	1.0000	y = 0.55403 x (std. dev. = 0.05358) (weighting: None)	%RSE=9.7
NMeFOSA	(512.0 / 219.0)	D3_NMeFOSA_EIS	4.0000	1.0000	y = 1.83459 x (std. dev. = 0.22263) (weighting: None)	%RSE=12.1
NEtFOSA	(526.0 / 219.0)	D5_NEtFOSA_EIS	4.0000	1.0000	y = 2.00378 x (std. dev. = 0.09806) (weighting: None)	%RSE=4.9
NMeFOSAA	(570.0 / 419.0)	D3_MeFOSAA_EIS	1.0000	1.0000	y = 0.23288 x (std. dev. = 0.01871) (weighting: None)	%RSE=8.0
NEtFOSAA	(584.0 / 419.0)	D5_EtFOSAA_EIS	1.0000	1.0000	y = 0.22405 x (std. dev. = 0.02385) (weighting: None)	%RSE=10.6
NMeFOSE	(616.0 / 59.0)	D7_NMeFOSE_EIS	4.0000	1.0000	y = 0.24896 x (std. dev. = 0.01440) (weighting: None)	%RSE=5.8
NEtFOSE	(630.0 / 59.0)	D9_NEtFOSE_EIS	4.0000	1.0000	y = 0.10589 x (std. dev. = 0.01202) (weighting: None)	%RSE=11.4
HFPO-DA	(285.0 / 169.0)	13C3_HFPODA_EIS	2.0000	1.0000	y = 0.15092 x (std. dev. = 0.00779) (weighting: None)	%RSE=5.2
ADONA	(377.0 / 85.0)	13C3_HFPODA_EIS	2.0000	0.9427	y = 0.76205 x (std. dev. = 0.05288) (weighting: None)	%RSE=6.9
9Cl-Pf3ONS	(531.0 / 351.0)	13C3_HFPODA_EIS	2.0000	0.9333	y = -0.01692 x^2 + 2.09001 x + 0.00781 (r = 0.99877) (weighting: 1 / x^2)	%RSE=6.9
11Cl-PF3OUDS	(631.0 / 451.0)	13C3_HFPODA_EIS	2.0000	0.9432	y = 1.01004 x (std. dev. = 0.10439) (weighting: None)	%RSE=10.3
3:3FTCA	(241.0 / 177.0)	13C5_PFPeA_EIS	4.0000	1.0000	y = 0.02760 x (std. dev. = 0.00283) (weighting: None)	%RSE=10.3
5:3FTCA	(341.0 / 236.7)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.30570 x (std. dev. = 0.02781) (weighting: None)	%RSE=9.1
7:3FTCA	(441.0 / 317.0)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.42963 x (std. dev. = 0.02560) (weighting: None)	%RSE=6.0
PFEESA	(315.0 / 135.0)	13C5_PFHxA_EIS	2.0000	0.8925	y = 0.84210 x (std. dev. = 0.05179) (weighting: None)	%RSE=6.2
PFMPA	(229.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.11833 x (std. dev. = 0.00861) (weighting: None)	%RSE=7.3
PFMBA	(279.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.35617 x (std. dev. = 0.03125) (weighting: None)	%RSE=8.8
NFDHA	(295.0 / 201.0)	13C5_PFHxA_EIS	2.0000	1.0000	y = 0.43871 x (std. dev. = 0.01879) (weighting: None)	%RSE=4.3
13C3_PFBA_IIS	(216.0 / 172.0)	13C3_PFBA_IIS	1.0000	1.0000	y = 169027.3775 x	%RSD=12.3
13C2_PFHxA_IIS	(315.0 / 270.0)	13C2_PFHxA_IIS	1.0000	1.0000	y = 298675.7056 x	%RSD=6.0
13C4_PFOA_IIS	(417.0 / 372.0)	13C4_PFOA_IIS	1.0000	1.0000	y = 330824.0115 x	%RSD=7.2
13C5_PFNA_IIS	(468.0 / 423.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 278799.1949 x	%RSD=7.4
13C2_PFDA_IIS	(515.0 / 470.1)	13C2_PFDA_IIS	1.0000	1.0000	y = 312695.4030 x	%RSD=11.7
18O2_PFHxS_IIS	(403.0 / 83.9)	18O2_PFHxS_IIS	1.0000	1.0000	y = 587298.8261 x	%RSD=6.0
13C4_PFOS_IIS	(503.0 / 79.9)	13C4_PFOS_IIS	1.0000	1.0000	y = 590322.5364 x	%RSD=6.1

Chemist:DAG
Instrument:Saphira
Type:Sciex Q5500

Quant Method:163

Analyte	(Q1 / Q3)	Internal Standard	Multiplier	AcidFactor	Function	Qualifier
13C4_PFBA_EIS	(217.0 / 172.0)	13C3_PFBA_IIS	8.0000	1.0000	y = 7.9685 x	%RSD=2.6
13C5_PFPeA_EIS	(268.0 / 223.0)	13C2_PFHxA_IIS	4.0000	1.0000	y = 3.2360 x	%RSD=10.0
13C5_PFHxA_EIS	(318.0 / 273.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 2.0938 x	%RSD=5.6
13C4_PFHpA_EIS	(367.0 / 322.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 1.8750 x	%RSD=8.5
13C8_PFOA_EIS	(421.0 / 376.0)	13C4_PFOA_IIS	2.0000	1.0000	y = 1.9815 x	%RSD=7.6
13C9_PFNA_EIS	(472.0 / 427.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 0.9928 x	%RSD=5.3
13C6_PFDA_EIS	(519.0 / 474.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.1733 x	%RSD=5.8
13C7_PFUnA_EIS	(570.0 / 525.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.5520 x	%RSD=16.0
13C2_PFDoA_EIS	(615.0 / 570.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.5720 x	%RSD=16.0
13C2_PFTeDA_EIS	(715.0 / 670.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.1248 x	%RSD=15.5
13C3_PFBS_EIS	(302.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 2.7835 x	%RSD=7.0
13C3_PFHxS_EIS	(402.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 1.6552 x	%RSD=4.4
13C8_PFOS_EIS	(507.0 / 80.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 2.4560 x	%RSD=8.8
13C2_4:2FTS_EIS	(329.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.9435 x	%RSD=11.4
13C2_6:2FTS_EIS	(429.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 1.3158 x	%RSD=7.1
13C2_8:2FTS_EIS	(529.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 1.3431 x	%RSD=8.8
13C8_PFOSA_EIS	(506.0 / 78.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 2.7372 x	%RSD=13.5
D3_NMeFOSA_EIS	(515.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.6048 x	%RSD=9.3
D5_NEtFOSA_EIS	(531.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.5502 x	%RSD=12.0
D3_MeFOSAA_EIS	(573.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 1.7043 x	%RSD=11.4
D5_EtFOSAA_EIS	(589.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 1.4786 x	%RSD=16.8
D7_NMeFOSE_EIS	(623.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 0.9743 x	%RSD=14.2
D9_NEtFOSE_EIS	(639.0 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 0.4442 x	%RSD=12.0
13C3_HFPODA_EIS	(287.0 / 169.0)	13C2_PFHxA_IIS	8.0000	1.0000	y = 4.6143 x	%RSD=4.5

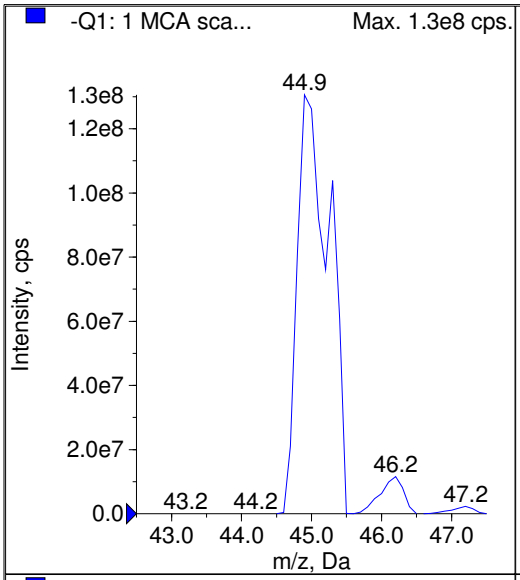
$$x = \text{Concentration Analyte}$$

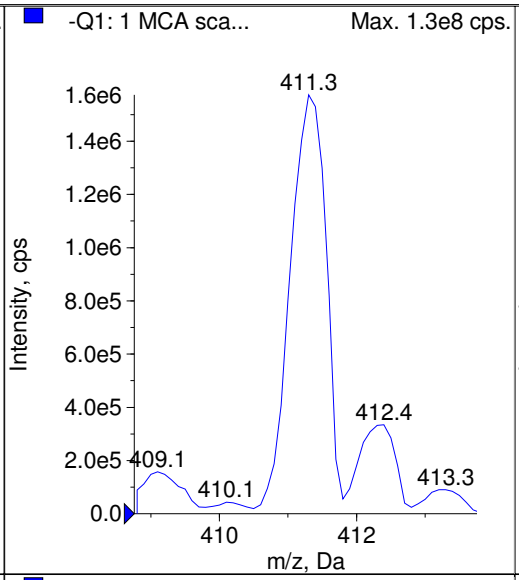
$$y = \text{Area Ratio} = \frac{\text{Area Analyte}}{\text{Area Internal Standard}}$$

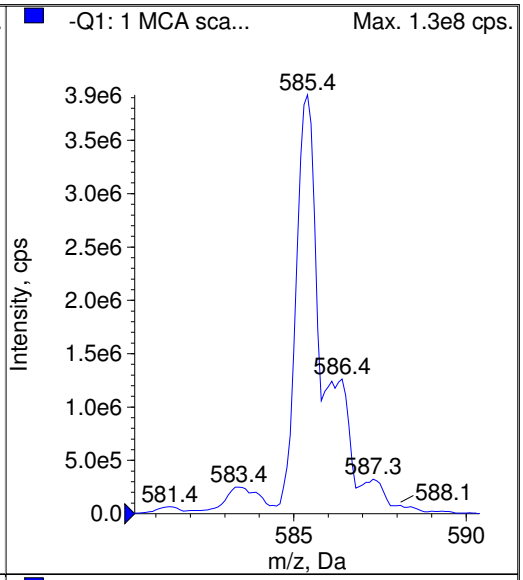
$$\text{Acid Factor} = \frac{\text{Moleculat weight Acid}}{\text{Molecular weight Salt}}$$

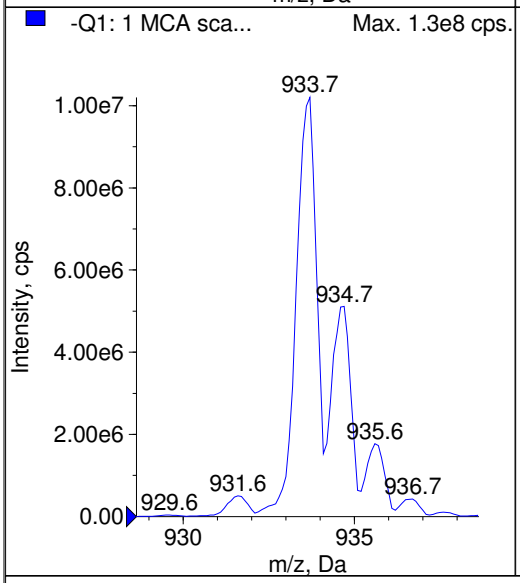
$$\text{Multiplier} = \frac{\text{Concentration of Analyte}}{\text{Concentration of PFOA}} \text{ in curve standard mix}$$

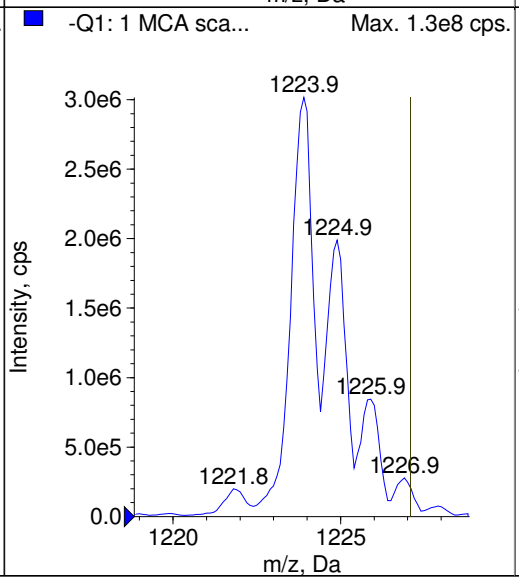
$$\text{Result } \left(\frac{\text{ng}}{\text{mL}}\right) = \text{x*Multiplier*Acid Factor}$$

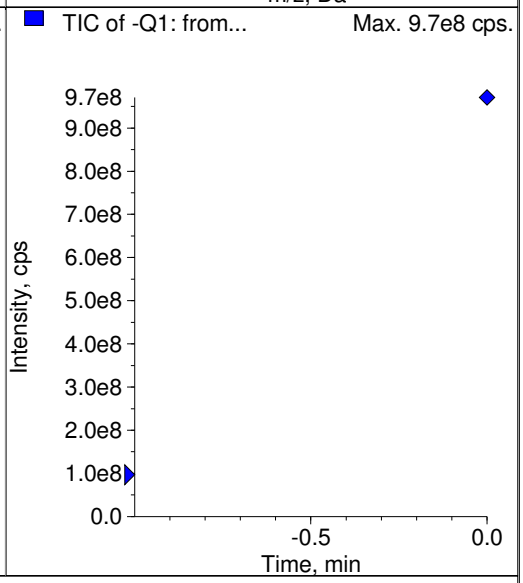






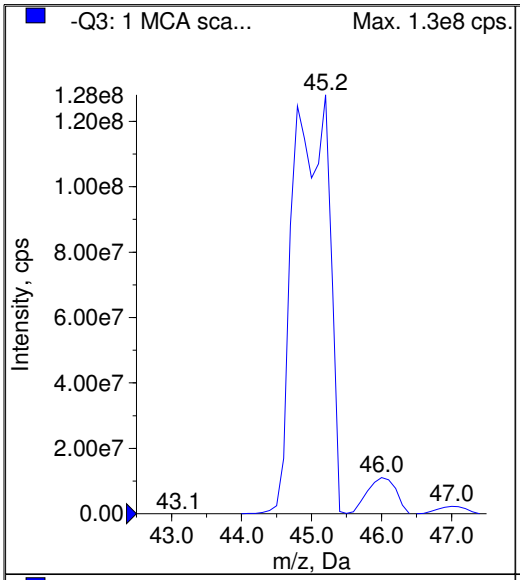


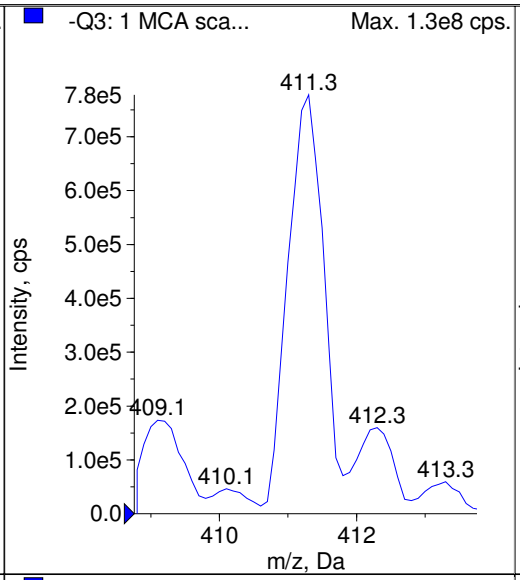


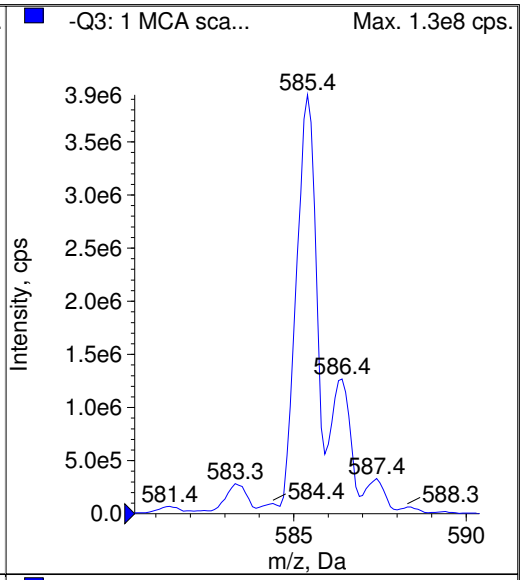


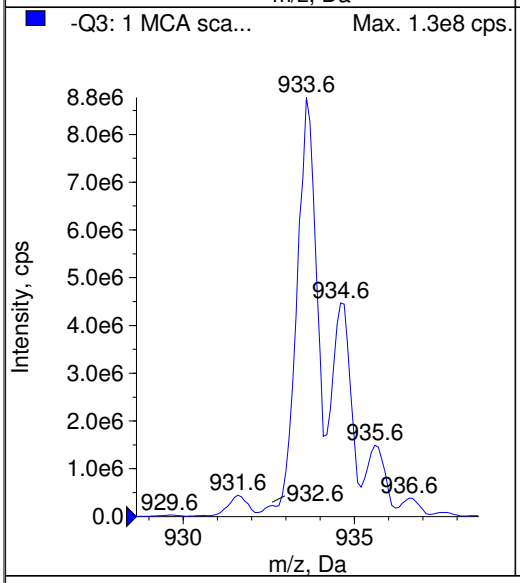
Peak List for " -Q1: 1 MCA scans from Sample 1 (TuneSampleID) of MT20221111142838.wiff (Turbo Spray)"

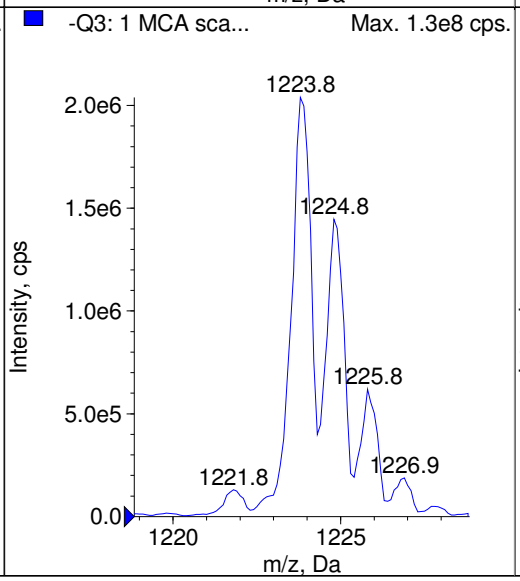
	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0305	1.3061e8	0.6158	-0.0325
2	411.2590	411.3148	1.5745e6	0.6085	-0.0558
3	585.3850	585.3651	3.9270e6	0.6307	0.0199
4	933.6360	933.6197	1.0205e7	0.6552	0.0163
5	1223.8450	1223.8627	3.0170e6	0.6967	-0.0177
6	1572.0970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

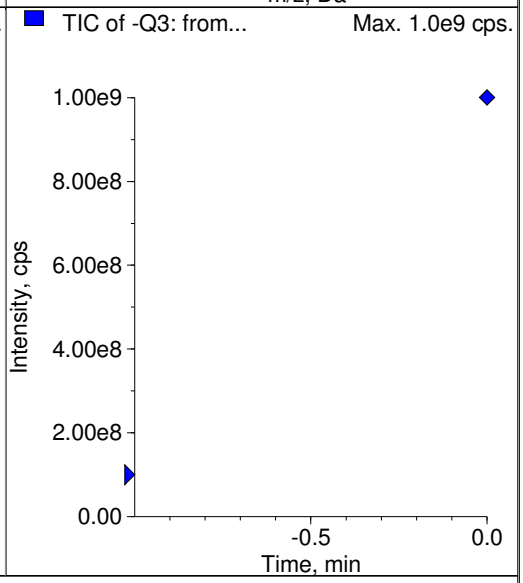












Peak List for " -Q3: 1 MCA scans from Sample 1 (TuneSampleID) of MT20221111142403.wiff (Turbo Spray)"

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

Initial Calibration:

EPA 1633

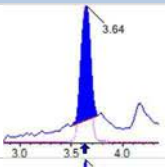
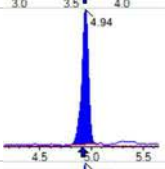
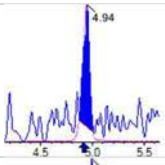
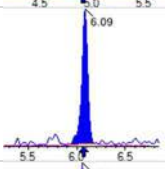
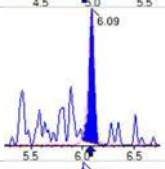
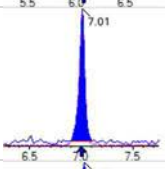
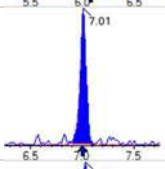
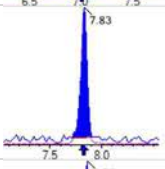
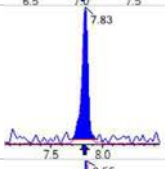
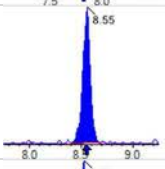
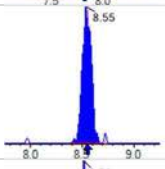
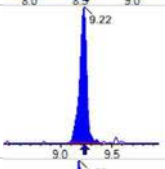
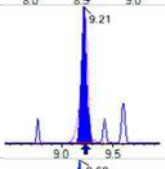
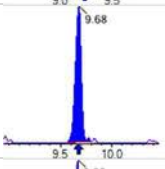
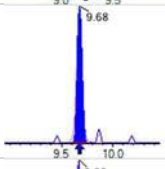
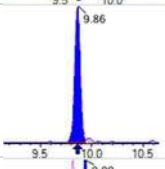
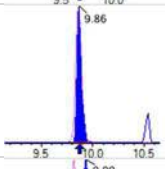
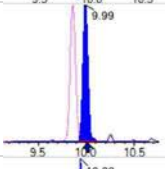
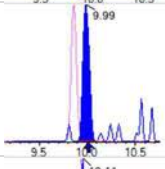
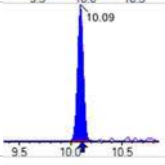
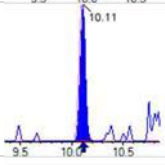
Initial Calibration: SC00059

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (1)
Acquired: 2023/01/05 - 18:20

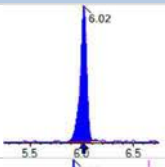
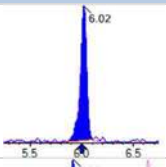
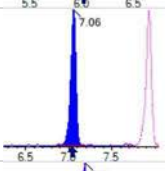
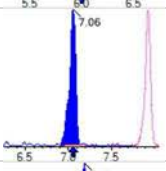
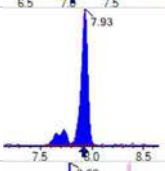
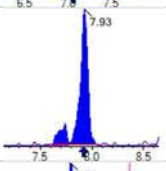
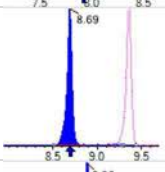
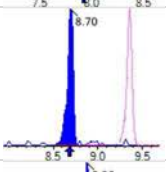
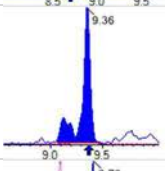
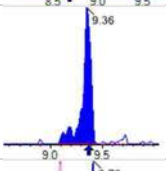
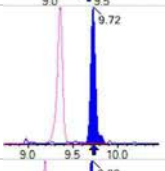
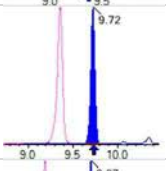
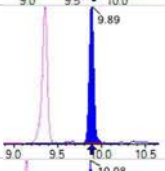
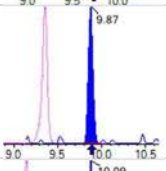
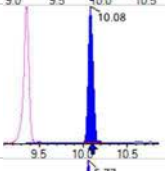
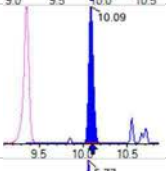
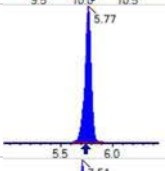
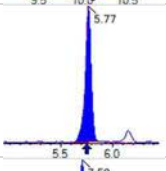
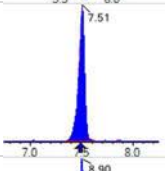
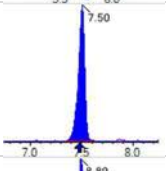
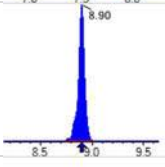
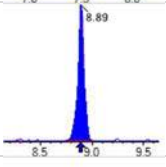
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 68536	(3.64 , 1.00) (0.00 , N/A , 0.0)	67.7	N/A 0.0 0.0	0.3410 [0.4000]	85.2%			
PFPeA	(263.0 / 219.0) 53584 (263.0 / 69.0) 830	(4.94 , 1.00) (0.00 , N/A , -0.1)	213.5 15.4	0.0155 127.5 127.5	0.1880 [0.2000]	94.0%			
PFHxA	(313.0 / 269.0) 29816 (313.0 / 119.0) 1835	(6.09 , 1.00) (0.00 , N/A , -0.1)	76.8 17.1	0.0616 61.7 61.7	0.0848 [0.1000]	84.8%			
PFHpA	(363.0 / 319.0) 30218 (363.0 / 169.0) 10254	(7.01 , 1.00) (0.00 , N/A , 0.0)	103.0 75.9	0.3393 113.9 113.9	0.0851 [0.1000]	85.1%			
PFOA	(413.0 / 369.0) 37506 (413.0 / 169.0) 13919	(7.83 , 1.00) (0.00 , N/A , 0.0)	87.2 56.4	0.3711 112.0 112.0	0.0884 [0.1000]	88.4%			
PFNA	(463.0 / 419.0) 26570 (463.0 / 169.0) 7872	(8.55 , 1.00) (0.00 , N/A , 0.4)	143.1 134.4	0.2963 129.1 129.1	0.0810 [0.1000]	81.0%			
PFDA	(513.0 / 469.0) 38985 (513.0 / 169.0) 2317	(9.22 , 1.00) (0.00 , N/A , 0.4)	188.9 79.5	0.0594 62.2 62.2	0.0920 [0.1000]	92.0%			
PFUnA	(563.0 / 519.0) 41478 (563.0 / 169.0) 9009	(9.68 , 1.00) (0.00 , N/A , 0.0)	137.8 162.2	0.2172 217.2 217.2	0.0796 [0.1000]	79.6%			IR2,
PFDoA	(613.0 / 569.0) 47745 (613.0 / 169.0) 3977	(9.86 , 1.00) (0.00 , N/A , -0.2)	270.3 1527.9	0.0833 67.9 67.9	0.0839 [0.1000]	83.9%			
PFTrDA	(663.0 / 619.0) 44716 (663.0 / 169.0) 10094	(9.99 , 1.01) (N/A , 0.00 , 0.3)	189.1 26.7	0.2257 115.6 115.6	0.0827 [0.1000]	82.7%			
PFTeDA	(713.0 / 669.0) 46431 (713.0 / 169.0) 7841	(10.09 , 1.00) (0.00 , N/A , -0.9)	131.8 39.2	0.1689 88.7 88.7	0.1140 [0.1000]	114.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (1)
Acquired: 2023/01/05 - 18:20

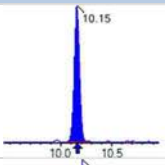
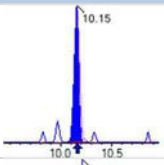
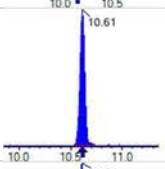
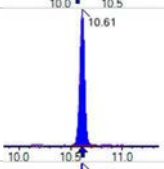
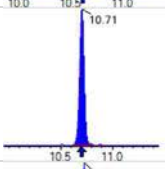
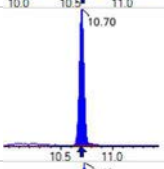
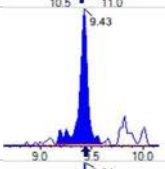
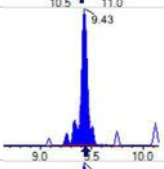
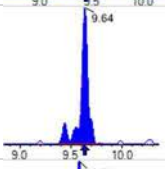
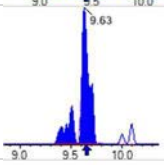
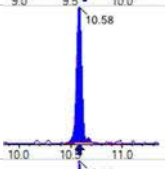
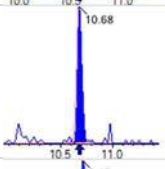
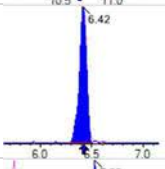
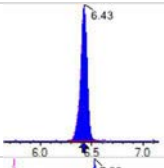
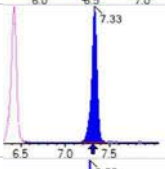
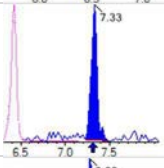
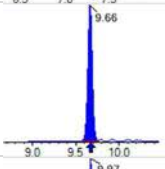
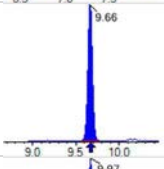
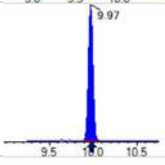
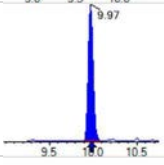
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 48753 (299.0 / 99.0) 30433	(6.02 , 1.00) (0.00 , N/A , 0.0)	238.9 134.5	0.6242 95.8 95.8	0.0827 [0.0885]	93.5%			
PFPeS	(349.0 / 80.0) 89455 (349.0 / 99.0) 31435	(7.06 , 0.89) (N/A , 0.00 , 0.0)	290.9 154.2	0.3514 95.5 95.5	0.0888 [0.0938]	94.6%			
PFHxS	(399.0 / 80.0) 83043 (399.0 / 99.0) 28284	(7.93 , 1.00) (0.00 , N/A , 0.2)	324.6 189.3	0.3406 98.8 98.8	0.0894 [0.0911]	98.2%			
PFHpS	(449.0 / 80.0) 74278 (449.0 / 99.0) 17446	(8.69 , 0.93) (N/A , -0.01 , -0.5)	366.6 116.7	0.2349 84.0 84.0	0.0871 [0.0951]	91.5%			
PFOS	(499.0 / 80.0) 165351 (499.0 / 99.0) 44269	(9.36 , 1.00) (0.00 , N/A , -0.2)	94.6 157.7	0.2677 119.2 119.2	0.1134 [0.0927]	122.3%			
PFNS	(549.0 / 80.0) 99874 (549.0 / 99.0) 27199	(9.72 , 1.04) (N/A , 0.00 , 0.1)	190.3 213.7	0.2723 107.8 107.8	0.0869 [0.0960]	90.5%			
PFDS	(599.0 / 80.0) 97447 (599.0 / 99.0) 19104	(9.89 , 1.06) (N/A , 0.00 , 0.7)	229.0 93.6	0.1960 84.6 84.6	0.0780 [0.0963]	81.0%			
PFDoS	(699.0 / 80.0) 56957 (699.0 / 99.0) 13059	(10.08 , 1.08) (N/A , 0.00 , -0.2)	398.5 74.1	0.2293 98.7 98.7	0.1083 [0.0970]	111.7%			
4:2FTS	(327.0 / 307.0) 192719 (327.0 / 81.0) 117968	(5.77 , 1.00) (0.00 , N/A , -0.1)	550.7 212.1	0.6121 111.5 111.5	0.3441 [0.3738]	92.1%			
6:2FTS	(427.0 / 407.0) 149254 (427.0 / 81.0) 100802	(7.51 , 1.00) (0.00 , N/A , 0.1)	529.5 416.3	0.6754 93.0 93.0	0.3854 [0.3796]	101.5%			
8:2FTS	(527.0 / 507.0) 140586 (527.0 / 81.0) 93934	(8.90 , 1.00) (0.00 , N/A , 0.3)	373.4 301.4	0.6682 100.2 100.2	0.3655 [0.3833]	95.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (1)
Acquired: 2023/01/05 - 18:20

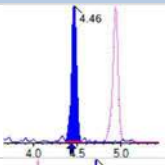
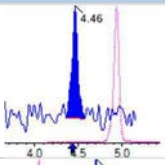
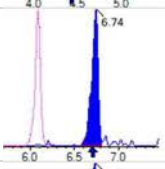
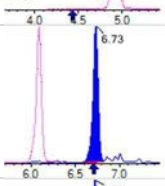
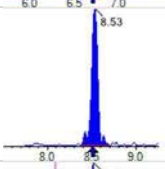
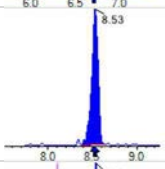
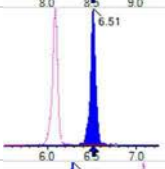
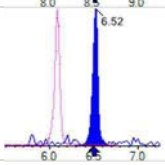
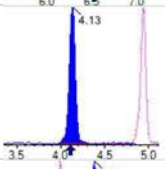
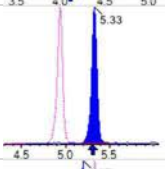
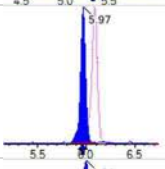
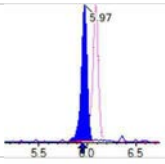
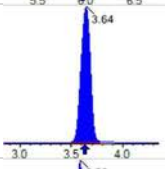
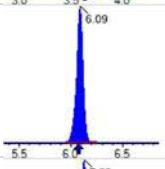
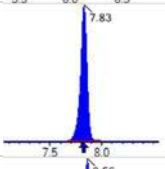
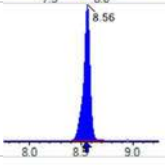
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 86852 (498.0 / 478.0) 3905	(10.15 , 1.00) (0.00 , N/A , 0.1)	284.2 120.0	0.0450 189.7 189.7	0.0824 [0.1000]	82.4%			
NMeFOSA	(512.0 / 219.0) 68676 (512.0 / 169.0) 54411	(10.61 , 1.00) (0.00 , N/A , 0.1)	577.9 397.7	0.7923 110.5 110.5	0.3489 [0.4000]	87.2%			
NEtFOSA	(526.0 / 219.0) 75554 (526.0 / 169.0) 79813	(10.71 , 1.00) (0.00 , N/A , 0.2)	740.2 411.8	1.0564 98.1 98.1	0.3669 [0.4000]	91.7%			
NMeFOSAA	(570.0 / 419.0) 29318 (570.0 / 483.0) 11724	(9.43 , 1.00) (0.00 , N/A , -0.2)	60.5 2060.6	0.3999 83.8 83.8	0.1039 [0.1000]	103.9%			
NEtFOSAA	(584.0 / 419.0) 23189 (584.0 / 526.0) 11130	(9.64 , 1.00) (0.00 , N/A , 0.2)	521.9 967.4	0.4800 75.5 75.5	0.0936 [0.1000]	93.6%			
NMeFOSE	(616.0 / 59.0) 16942	(10.58 , 1.00) (0.00 , N/A , 0.0)	168.7	N/A 0.0 0.0	0.3669 [0.4000]	91.7%			
NEtFOSE	(630.0 / 59.0) 2831	(10.68 , 1.00) (0.01 , N/A , 0.0)	89.6	N/A 0.0 0.0	0.3308 [0.4000]	82.7%			
HFPO-DA	(285.0 / 169.0) 19681 (285.0 / 185.0) 68499	(6.42 , 1.00) (-0.01 , N/A , -0.6)	302.3 369.4	3.4805 108.0 108.0	0.1831 [0.2000]	91.6%			
ADONA	(377.0 / 85.0) 111465 (377.0 / 251.0) 15404	(7.33 , 1.14) (N/A , -0.01 , 0.1)	420.1 70.4	0.1382 110.6 110.6	0.1936 [0.1885]	102.7%			
9Cl-Pf3ONS	(531.0 / 351.0) 313042 (533.0 / 353.0) 113058	(9.66 , 1.50) (N/A , -0.01 , 0.0)	241.1 345.4	0.3612 119.2 119.2	0.1895 [0.1867]	101.5%			
11Cl-PF3OUDS	(631.0 / 451.0) 147267 (633.0 / 453.0) 42597	(9.97 , 1.55) (N/A , 0.00 , 0.0)	431.9 244.4	0.2893 100.6 100.6	0.1931 [0.1886]	102.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (1)
Acquired: 2023/01/05 - 18:20

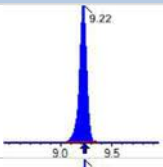
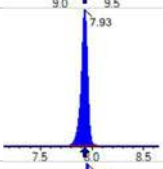
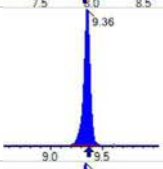
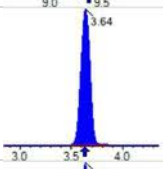
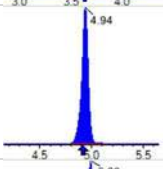
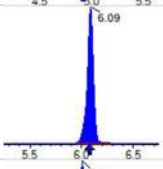
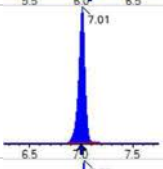
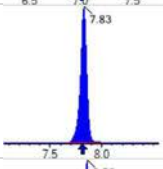
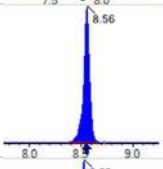
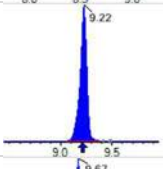
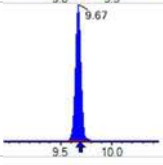
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 2804 (241.0 / 117.0) 5026	(4.46 , 0.90) (N/A , 0.02 , 0.0)	123.3 24.9	1.7923 114.9 114.9	0.3357 [0.4000]	83.9%			
5:3FTCA	(341.0 / 236.7) 18836 (341.0 / 217.0) 35458	(6.74 , 1.11) (N/A , 0.01 , 0.5)	95.9 114.8	1.8825 101.4 101.4	0.3444 [0.4000]	86.1%			
7:3FTCA	(441.0 / 317.0) 30077 (441.0 / 337.0) 26391	(8.53 , 1.40) (N/A , -0.01 , 0.1)	149.2 182.7	0.8774 109.4 109.4	0.3913 [0.4000]	97.8%			
PFEESA	(315.0 / 135.0) 55505 (315.0 / 83.0) 17777	(6.51 , 1.07) (N/A , 0.00 , -0.4)	351.6 71.3	0.3203 101.7 101.7	0.1644 [0.1785]	92.1%			
PFMPA	(229.0 / 85.0) 12798	(4.13 , 0.84) (N/A , 0.02 , 0.0)	288.3	N/A 0.0 0.0	0.1787 [0.2000]	89.3%			
PFMBA	(279.0 / 85.0) 37666	(5.33 , 1.08) (N/A , 0.01 , 0.0)	424.1	N/A 0.0 0.0	0.1747 [0.2000]	87.3%			
NFDHA	(295.0 / 201.0) 30748 (295.0 / 85.0) 27805	(5.97 , 0.98) (N/A , 0.01 , -0.2)	345.0 182.7	0.9043 93.2 93.2	0.1959 [0.2000]	97.9%			
13C3_PFBA_IIS	(216.0 / 172.0) 209974	(3.64 , N/A) (N/A , 0.02 , N/A)	649.8	N/A	1.2422 [1.0000]	124.2% { 118.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 310470	(6.09 , N/A) (N/A , 0.00 , N/A)	397.1	N/A	1.0395 [1.0000]	103.9% { 95.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 357600	(7.83 , N/A) (N/A , -0.01 , N/A)	563.2	N/A	1.0809 [1.0000]	108.1% { 99.2% }			
13C5_PFNA_IIS	(468.0 / 423.0) 305425	(8.56 , N/A) (N/A , -0.01 , N/A)	384.8	N/A	1.0955 [1.0000]	109.6% { 102.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (1)
Acquired: 2023/01/05 - 18:20

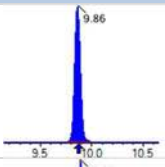
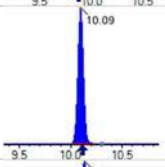
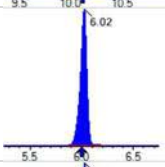
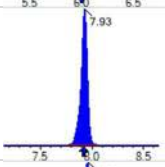
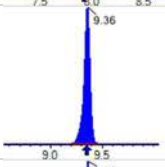
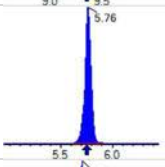
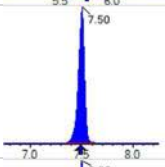
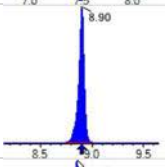
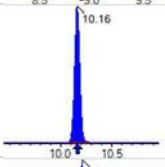
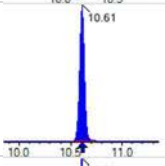
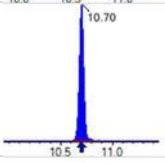
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 323818	(9.22 , N/A) (N/A , -0.01 , N/A)	577.5	N/A	1.0356 [1.0000]	103.6% { 82.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 665462	(7.93 , N/A) (N/A , -0.01 , N/A)	786.4	N/A	1.1331 [1.0000]	113.3% { 116.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 604064	(9.36 , N/A) (N/A , -0.01 , N/A)	558.7	N/A	1.0233 [1.0000]	102.3% { 93.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1752235	(3.64 , N/A) (N/A , 0.01 , N/A)	765.5	N/A	8.3780 [8.0000]	104.7% { 122.4% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1210783	(4.94 , N/A) (N/A , 0.01 , N/A)	661.2	N/A	4.8205 [4.0000]	120.5% { 119.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 715675	(6.09 , N/A) (N/A , 0.00 , N/A)	446.0	N/A	2.2019 [2.0000]	110.1% { 109.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 693943	(7.01 , N/A) (N/A , 0.00 , N/A)	561.7	N/A	2.3842 [2.0000]	119.2% { 124.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 804052	(7.83 , N/A) (N/A , -0.01 , N/A)	496.9	N/A	2.2695 [2.0000]	113.5% { 122.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 335660	(8.56 , N/A) (N/A , -0.01 , N/A)	579.3	N/A	1.1069 [1.0000]	110.7% { 114.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 409900	(9.22 , N/A) (N/A , -0.01 , N/A)	415.6	N/A	1.0789 [1.0000]	107.9% { 94.1% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 581641	(9.67 , N/A) (N/A , 0.00 , N/A)	500.1	N/A	1.1573 [1.0000]	115.7% { 118.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (1)
Acquired: 2023/01/05 - 18:20

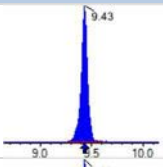
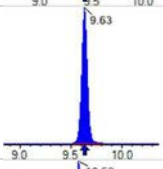
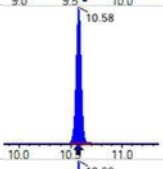
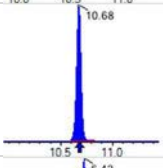
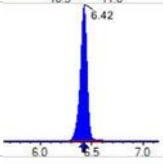
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 623721	(9.86 , N/A) (N/A , 0.00 , N/A)	779.3	N/A	1.2253 [1.0000]	122.5% { 118.6% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 408798	(10.09 , N/A) (N/A , 0.00 , N/A)	1070.6	N/A	1.1224 [1.0000]	112.2% { 119.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1863268	(6.02 , N/A) (N/A , 0.01 , N/A)	553.6	N/A	2.0119 [2.0000]	100.6% { 112.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1103055	(7.93 , N/A) (N/A , -0.01 , N/A)	754.8	N/A	2.0028 [2.0000]	100.1% { 106.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1770496	(9.36 , N/A) (N/A , -0.01 , N/A)	538.6	N/A	2.3868 [2.0000]	119.3% { 119.5% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 648008	(5.76 , N/A) (N/A , 0.01 , N/A)	566.4	N/A	4.1285 [4.0000]	103.2% { 114.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 963879	(7.50 , N/A) (N/A , 0.00 , N/A)	789.5	N/A	4.4033 [4.0000]	110.1% { 118.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 1017278	(8.90 , N/A) (N/A , -0.01 , N/A)	606.9	N/A	4.5528 [4.0000]	113.8% { 127.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1901618	(10.16 , N/A) (N/A , 0.00 , N/A)	1101.4	N/A	2.3002 [2.0000]	115.0% { 104.9% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 429196	(10.61 , N/A) (N/A , 0.00 , N/A)	930.1	N/A	2.3495 [2.0000]	117.5% { 124.4% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 411096	(10.70 , N/A) (N/A , 0.00 , N/A)	906.6	N/A	2.4738 [2.0000]	123.7% { 121.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (1)
Acquired: 2023/01/05 - 18:20

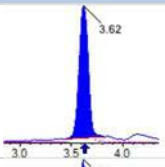
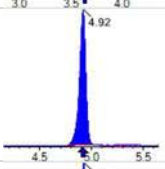
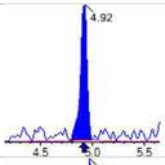
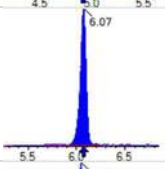
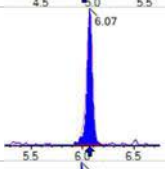
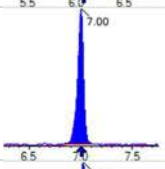
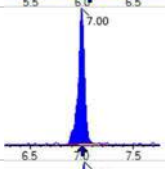
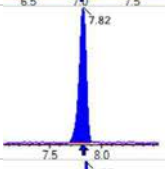
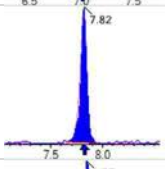
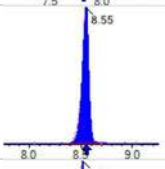
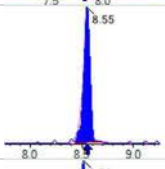
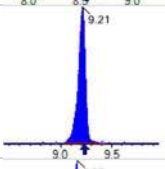
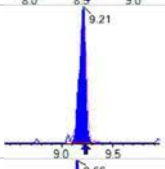
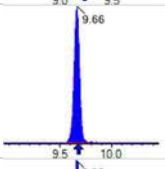
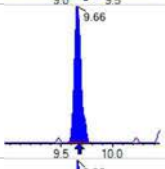
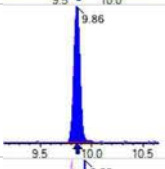
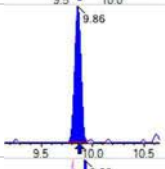
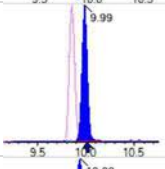
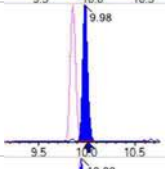
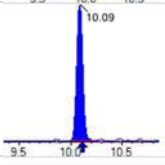
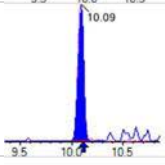
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1211665	(9.43 , N/A) (N/A , -0.01 , N/A)	507.7	N/A	4.7078 [4.0000]	117.7% { 123.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1106010	(9.63 , N/A) (N/A , 0.00 , N/A)	211.7	N/A	4.9532 [4.0000]	123.8% { 116.9% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 741914	(10.58 , N/A) (N/A , 0.00 , N/A)	1254.2	N/A	25.2109 [20.0000]	126.1% { 126.2% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 323255	(10.68 , N/A) (N/A , 0.00 , N/A)	920.5	N/A	24.0964 [20.0000]	120.5% { 110.6% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1424309	(6.42 , N/A) (N/A , 0.00 , N/A)	507.3	N/A	7.9537 [8.0000]	99.4% { 97.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (2)
Acquired: 2023/01/05 - 18:33

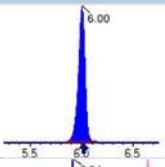
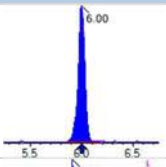
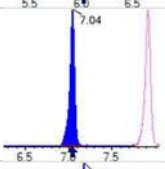
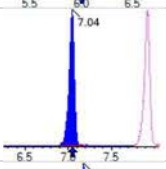
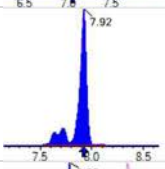
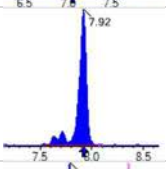
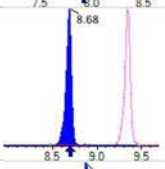
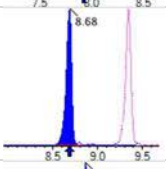
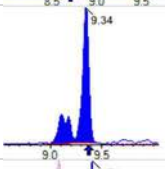
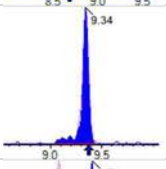
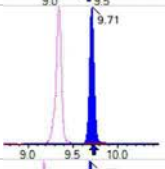
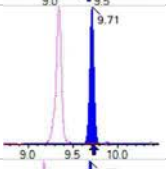
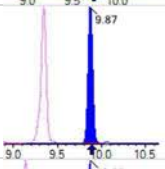
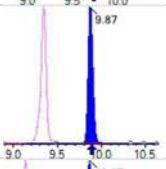
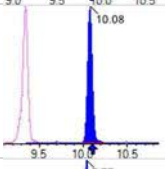
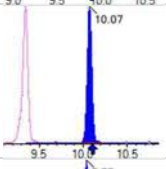
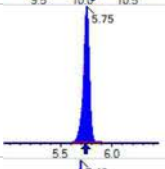
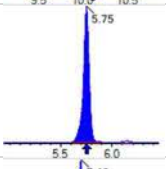
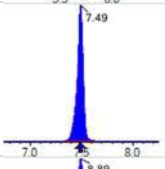
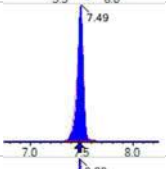
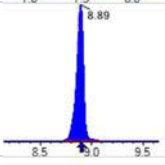
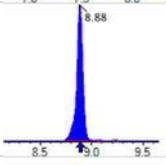
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 314777	(3.62 , 1.00) (0.00 , N/A , 0.0)	235.7	N/A 0.0 0.0	1.9569 [2.0000]	97.8%			
PFPeA	(263.0 / 219.0) 209338 (263.0 / 69.0) 3143	(4.92 , 1.00) (0.00 , N/A , 0.0)	417.7 40.8	0.0150 123.7 123.7	0.9269 [1.0000]	92.7%			
PFHxA	(313.0 / 269.0) 163314 (313.0 / 119.0) 18555	(6.07 , 1.00) (0.00 , N/A , 0.1)	310.9 174.8	0.1136 113.8 113.8	0.5056 [0.5000]	101.1%			
PFHpA	(363.0 / 319.0) 128711 (363.0 / 169.0) 37525	(7.00 , 1.00) (0.00 , N/A , 0.1)	277.7 219.9	0.2915 97.8 97.8	0.4296 [0.5000]	85.9%			
PFOA	(413.0 / 369.0) 169352 (413.0 / 169.0) 54959	(7.82 , 1.00) (0.00 , N/A , 0.0)	304.9 209.7	0.3245 97.9 97.9	0.4678 [0.5000]	93.6%			
PFNA	(463.0 / 419.0) 135695 (463.0 / 169.0) 27057	(8.55 , 1.00) (0.00 , N/A , -0.2)	442.4 201.1	0.1994 86.9 86.9	0.5422 [0.5000]	108.4%			
PFDA	(513.0 / 469.0) 181584 (513.0 / 169.0) 15762	(9.21 , 1.00) (0.00 , N/A , 0.2)	338.3 262.6	0.0868 90.9 90.9	0.4966 [0.5000]	99.3%			
PFUnA	(563.0 / 519.0) 229065 (563.0 / 169.0) 16486	(9.66 , 1.00) (0.00 , N/A , 0.2)	508.4 146.9	0.0720 72.0 72.0	0.5139 [0.5000]	102.8%			
PFDoA	(613.0 / 569.0) 187726 (613.0 / 169.0) 22380	(9.86 , 1.00) (0.01 , N/A , 0.0)	262.9 149.6	0.1192 97.2 97.2	0.4501 [0.5000]	90.0%			
PFTrDA	(663.0 / 619.0) 206184 (663.0 / 169.0) 56951	(9.99 , 1.01) (N/A , -0.01 , 0.4)	380.9 244.2	0.2762 141.4 141.4	0.5205 [0.5000]	104.1%			
PFTeDA	(713.0 / 669.0) 128204 (713.0 / 169.0) 24813	(10.09 , 1.00) (0.00 , N/A , -0.3)	217.6 73.4	0.1935 101.7 101.7	0.3874 [0.5000]	77.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (2)
Acquired: 2023/01/05 - 18:33

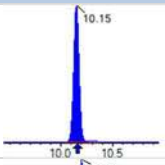
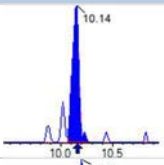
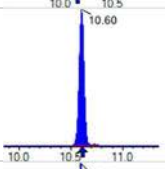
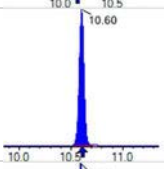
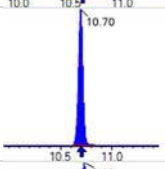
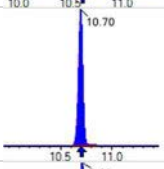
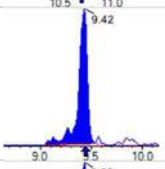
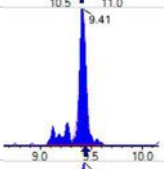
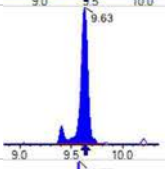
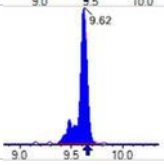
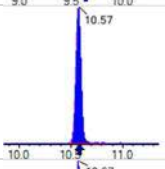
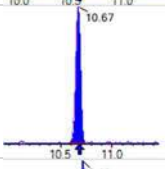
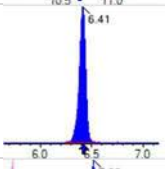
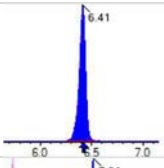
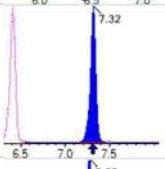
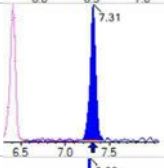
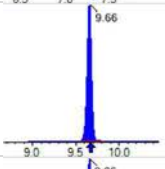
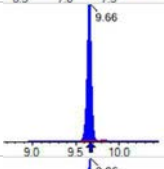
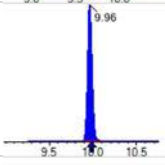
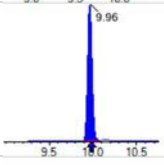
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 219569 (299.0 / 99.0) 144767	(6.00 , 1.00) (0.00 , N/A , 0.2)	496.9 397.2	0.6593 101.2 101.2	0.4096 [0.4424]	92.6%			
PFPeS	(349.0 / 80.0) 406298 (349.0 / 99.0) 150335	(7.04 , 0.89) (N/A , -0.01 , 0.1)	585.5 513.1	0.3700 100.6 100.6	0.4598 [0.4692]	98.0%			
PFHxS	(399.0 / 80.0) 351260 (399.0 / 99.0) 125229	(7.92 , 1.00) (0.00 , N/A , 0.2)	511.4 376.7	0.3565 103.4 103.4	0.4313 [0.4555]	94.7%			
PFHpS	(449.0 / 80.0) 321537 (449.0 / 99.0) 94103	(8.68 , 0.93) (N/A , -0.02 , 0.2)	523.2 315.2	0.2927 104.6 104.6	0.4448 [0.4757]	93.5%			
PFOS	(499.0 / 80.0) 393216 (499.0 / 99.0) 91058	(9.34 , 1.00) (0.00 , N/A , 0.2)	159.4 566.1	0.2316 103.1 103.1	0.4020 [0.4637]	86.7%			
PFNS	(549.0 / 80.0) 429760 (549.0 / 99.0) 128424	(9.71 , 1.04) (N/A , -0.02 , -0.1)	440.9 455.2	0.2988 118.3 118.3	0.4410 [0.4799]	91.9%			
PFDS	(599.0 / 80.0) 451757 (599.0 / 99.0) 109735	(9.87 , 1.06) (N/A , -0.01 , 0.0)	552.5 302.2	0.2429 104.8 104.8	0.4267 [0.4816]	88.6%			
PFDoS	(699.0 / 80.0) 195478 (699.0 / 99.0) 56628	(10.08 , 1.08) (N/A , -0.01 , 0.3)	662.3 323.3	0.2897 124.7 124.7	0.4386 [0.4848]	90.5%			
4:2FTS	(327.0 / 307.0) 1029473 (327.0 / 81.0) 601153	(5.75 , 1.00) (0.00 , N/A , 0.1)	619.1 453.0	0.5839 106.4 106.4	2.0410 [1.8691]	109.2%			
6:2FTS	(427.0 / 407.0) 651571 (427.0 / 81.0) 450013	(7.49 , 1.00) (0.00 , N/A , 0.0)	610.7 632.5	0.6907 95.1 95.1	1.9819 [1.8981]	104.4%			
8:2FTS	(527.0 / 507.0) 525816 (527.0 / 81.0) 376554	(8.89 , 1.00) (0.01 , N/A , 0.4)	462.6 524.0	0.7161 107.3 107.3	1.8856 [1.9166]	98.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (2)
Acquired: 2023/01/05 - 18:33

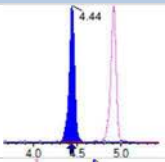
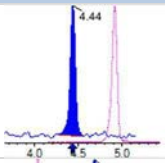
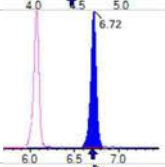
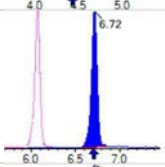
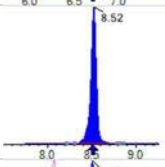
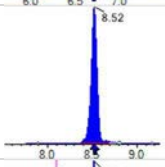
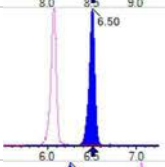
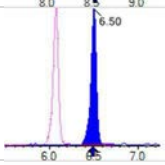
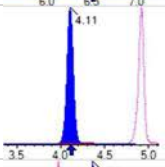
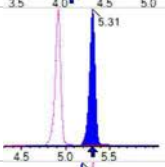
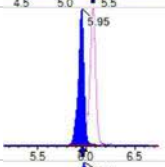
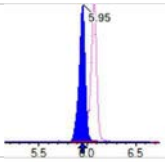
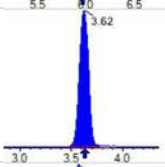
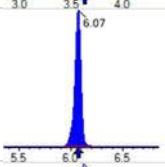
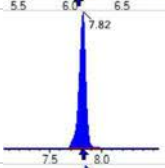
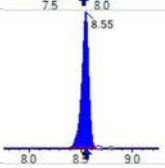
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 487283 (498.0 / 478.0) 5875	(10.15 , 1.00) (0.00 , N/A , 0.4)	383.2 52.4	0.0121 50.9 50.9	0.4906 [0.5000]	98.1%			
NMeFOSA	(512.0 / 219.0) 333522 (512.0 / 169.0) 244371	(10.60 , 1.00) (0.00 , N/A , 0.0)	742.6 864.3	0.7327 102.2 102.2	2.0333 [2.0000]	101.7%			
NEtFOSA	(526.0 / 219.0) 343640 (526.0 / 169.0) 360056	(10.70 , 1.00) (0.00 , N/A , 0.0)	1172.5 1002.7	1.0478 97.3 97.3	1.9905 [2.0000]	99.5%			
NMeFOSAA	(570.0 / 419.0) 106037 (570.0 / 483.0) 59184	(9.42 , 1.00) (0.01 , N/A , 0.5)	129.4 206.5	0.5581 117.0 117.0	0.4706 [0.5000]	94.1%			
NEtFOSAA	(584.0 / 419.0) 94726 (584.0 / 526.0) 72181	(9.63 , 1.00) (0.00 , N/A , 0.5)	679.6 1250.0	0.7620 119.9 119.9	0.5144 [0.5000]	102.9%			
NMeFOSE	(616.0 / 59.0) 71468	(10.57 , 1.00) (0.00 , N/A , 0.0)	488.1	N/A 0.0 0.0	1.8905 [2.0000]	94.5%			
NEtFOSE	(630.0 / 59.0) 12931	(10.67 , 1.00) (0.01 , N/A , 0.0)	326.1	N/A 0.0 0.0	1.6276 [2.0000]	81.4%			
HFPO-DA	(285.0 / 169.0) 101209 (285.0 / 185.0) 326464	(6.41 , 1.00) (0.00 , N/A , 0.0)	473.6 564.1	3.2256 100.1 100.1	0.9471 [1.0000]	94.7%			
ADONA	(377.0 / 85.0) 511772 (377.0 / 251.0) 61393	(7.32 , 1.14) (N/A , -0.02 , 0.2)	563.5 156.2	0.1200 96.0 96.0	0.8941 [0.9427]	94.8%			
9Cl-Pf3ONS	(531.0 / 351.0) 1393223 (533.0 / 353.0) 404554	(9.66 , 1.51) (N/A , -0.02 , 0.0)	619.1 376.4	0.2904 95.9 95.9	0.8749 [0.9333]	93.8%			
11Cl-PF3OUDS	(631.0 / 451.0) 719508 (633.0 / 453.0) 234680	(9.96 , 1.55) (N/A , -0.01 , 0.0)	619.7 424.6	0.3262 113.4 113.4	0.9489 [0.9432]	100.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (2)
Acquired: 2023/01/05 - 18:33

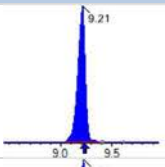
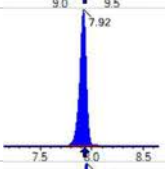
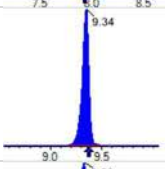
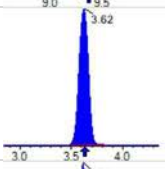
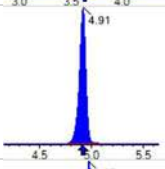
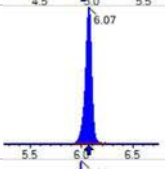
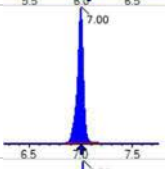
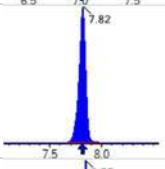
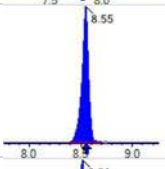
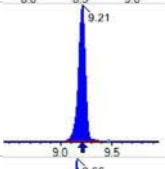
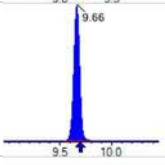
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 13318 (241.0 / 117.0) 21677	(4.44 , 0.90) (N/A , 0.00 , 0.2)	302.8 116.1	1.6276 104.3 104.3	2.0123 [2.0000]	100.6%			
5:3FTCA	(341.0 / 236.7) 94084 (341.0 / 217.0) 158797	(6.72 , 1.11) (N/A , -0.01 , 0.2)	379.5 311.2	1.6878 90.9 90.9	1.8716 [2.0000]	93.6%			
7:3FTCA	(441.0 / 317.0) 127186 (441.0 / 337.0) 106383	(8.52 , 1.40) (N/A , -0.02 , 0.1)	311.0 244.9	0.8364 104.3 104.3	1.8003 [2.0000]	90.0%			
PFEESA	(315.0 / 135.0) 246149 (315.0 / 83.0) 84467	(6.50 , 1.07) (N/A , -0.01 , 0.1)	536.1 284.8	0.3432 109.0 109.0	0.7932 [0.8925]	88.9%			
PFMPA	(229.0 / 85.0) 58397	(4.11 , 0.84) (N/A , 0.00 , 0.0)	615.5	N/A 0.0 0.0	1.0289 [1.0000]	102.9%			
PFMBA	(279.0 / 85.0) 164472	(5.31 , 1.08) (N/A , -0.01 , 0.0)	532.6	N/A 0.0 0.0	0.9627 [1.0000]	96.3%			
NFDHA	(295.0 / 201.0) 135402 (295.0 / 85.0) 130357	(5.95 , 0.98) (N/A , -0.01 , 0.1)	496.5 530.8	0.9627 99.2 99.2	0.9384 [1.0000]	93.8%			
13C3_PFBA_IIS	(216.0 / 172.0) 175336	(3.62 , N/A) (N/A , 0.00 , N/A)	593.7	N/A	1.0373 [1.0000]	103.7% { 99.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 320543	(6.07 , N/A) (N/A , -0.01 , N/A)	793.5	N/A	1.0732 [1.0000]	107.3% { 98.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 336676	(7.82 , N/A) (N/A , -0.02 , N/A)	669.1	N/A	1.0177 [1.0000]	101.8% { 93.4% }			
13C5_PFNA_IIS	(468.0 / 423.0) 269148	(8.55 , N/A) (N/A , -0.02 , N/A)	458.3	N/A	0.9654 [1.0000]	96.5% { 90.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (2)
Acquired: 2023/01/05 - 18:33

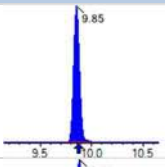
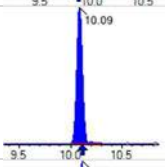
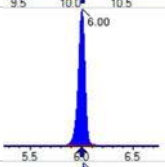
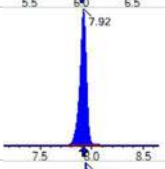
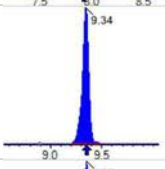
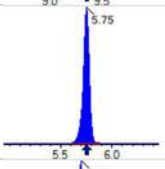
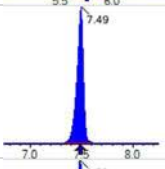
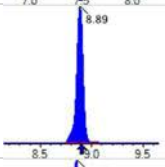
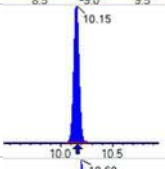
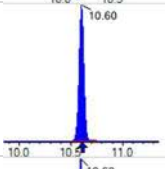
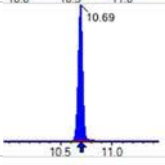
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 308383	(9.21 , N/A) (N/A , -0.03 , N/A)	346.9	N/A	0.9862 [1.0000]	98.6% { 78.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 613425	(7.92 , N/A) (N/A , -0.02 , N/A)	681.1	N/A	1.0445 [1.0000]	104.4% { 107.3% }			
13C4_PFOS_IIS	(503.0 / 79.9) 592918	(9.34 , N/A) (N/A , -0.02 , N/A)	527.4	N/A	1.0044 [1.0000]	100.4% { 91.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1402290	(3.62 , N/A) (N/A , 0.00 , N/A)	602.1	N/A	8.0293 [8.0000]	100.4% { 98.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 959320	(4.91 , N/A) (N/A , -0.01 , N/A)	595.6	N/A	3.6994 [4.0000]	92.5% { 95.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 657754	(6.07 , N/A) (N/A , -0.01 , N/A)	562.7	N/A	1.9601 [2.0000]	98.0% { 100.6% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 585820	(7.00 , N/A) (N/A , -0.01 , N/A)	427.4	N/A	1.9494 [2.0000]	97.5% { 105.3% }			
13C8_PFOA_EIS	(421.0 / 376.0) 686112	(7.82 , N/A) (N/A , -0.02 , N/A)	526.8	N/A	2.0569 [2.0000]	102.8% { 104.2% }			
13C9_PFNA_EIS	(472.0 / 427.0) 256219	(8.55 , N/A) (N/A , -0.02 , N/A)	565.2	N/A	0.9588 [1.0000]	95.9% { 87.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 353740	(9.21 , N/A) (N/A , -0.02 , N/A)	323.3	N/A	0.9777 [1.0000]	97.8% { 81.2% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 497319	(9.66 , N/A) (N/A , -0.01 , N/A)	426.2	N/A	1.0391 [1.0000]	103.9% { 101.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (2)
Acquired: 2023/01/05 - 18:33

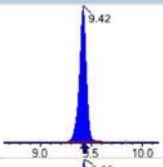
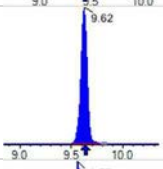
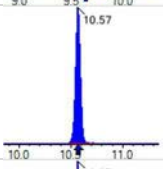
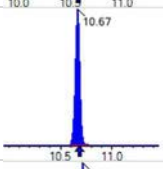
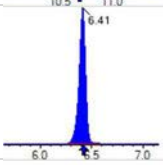
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 457211	(9.85 , N/A) (N/A , -0.01 , N/A)	657.4	N/A	0.9431 [1.0000]	94.3% { 86.9% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 332178	(10.09 , N/A) (N/A , -0.01 , N/A)	1622.2	N/A	0.9577 [1.0000]	95.8% { 97.3% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1694164	(6.00 , N/A) (N/A , -0.01 , N/A)	566.3	N/A	1.9844 [2.0000]	99.2% { 102.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 967708	(7.92 , N/A) (N/A , -0.02 , N/A)	658.6	N/A	1.9061 [2.0000]	95.3% { 93.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1500428	(9.34 , N/A) (N/A , -0.02 , N/A)	510.2	N/A	2.0607 [2.0000]	103.0% { 101.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 583601	(5.75 , N/A) (N/A , -0.01 , N/A)	634.1	N/A	4.0335 [4.0000]	100.8% { 103.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 818240	(7.49 , N/A) (N/A , -0.01 , N/A)	772.4	N/A	4.0551 [4.0000]	101.4% { 100.1% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 737433	(8.89 , N/A) (N/A , -0.02 , N/A)	497.2	N/A	3.5804 [4.0000]	89.5% { 92.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1792687	(10.15 , N/A) (N/A , -0.01 , N/A)	1244.4	N/A	2.2092 [2.0000]	110.5% { 98.9% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 357640	(10.60 , N/A) (N/A , -0.01 , N/A)	838.1	N/A	1.9946 [2.0000]	99.7% { 103.6% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 344634	(10.69 , N/A) (N/A , -0.01 , N/A)	1227.9	N/A	2.1129 [2.0000]	105.6% { 101.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (2)
Acquired: 2023/01/05 - 18:33

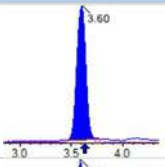
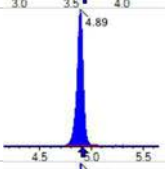
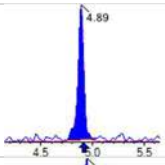
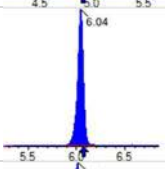
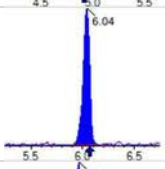
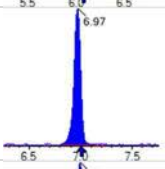
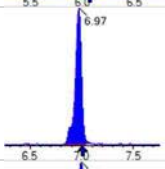
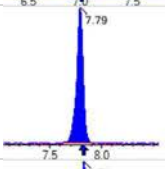
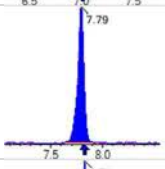
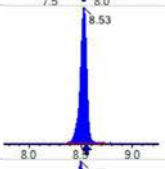
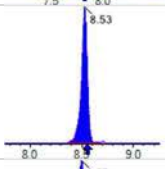
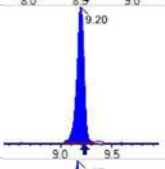
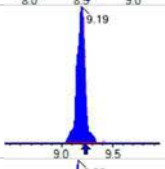
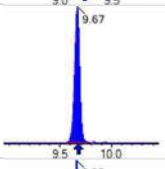
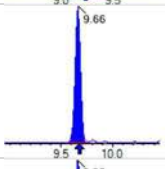
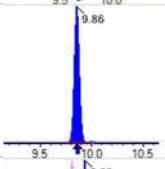
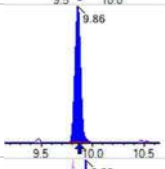
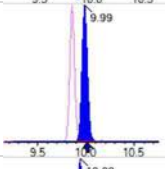
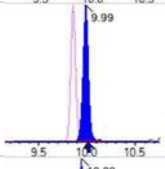
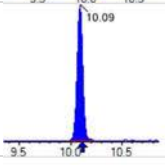
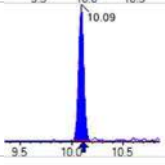
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 967469	(9.42 , N/A) (N/A , -0.02 , N/A)	317.1	N/A	3.8296 [4.0000]	95.7% { 98.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 821945	(9.62 , N/A) (N/A , -0.01 , N/A)	137.5	N/A	3.7503 [4.0000]	93.8% { 86.9% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 607372	(10.57 , N/A) (N/A , -0.01 , N/A)	1184.5	N/A	21.0270 [20.0000]	105.1% { 103.4% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 300113	(10.67 , N/A) (N/A , -0.01 , N/A)	1411.6	N/A	22.7919 [20.0000]	114.0% { 102.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1416165	(6.41 , N/A) (N/A , -0.01 , N/A)	578.3	N/A	7.6598 [8.0000]	95.7% { 97.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (3)
Acquired: 2023/01/05 - 18:46

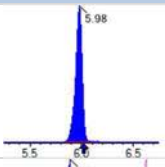
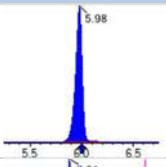
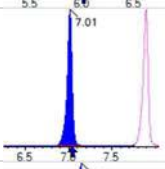
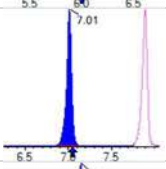
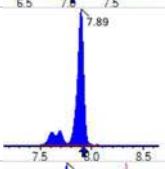
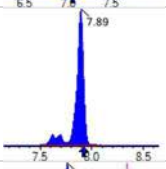
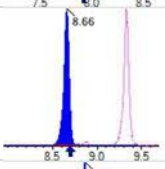
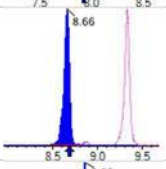
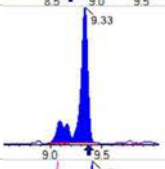
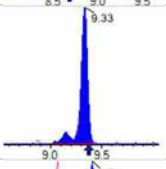
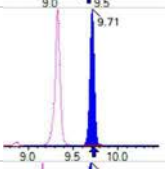
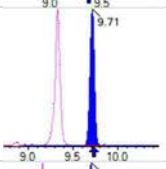
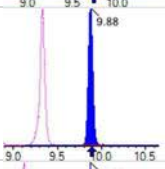
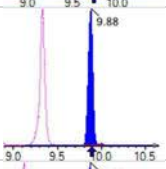
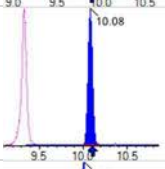
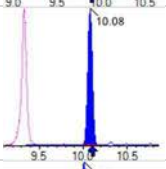
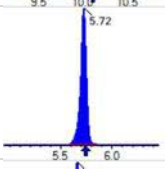
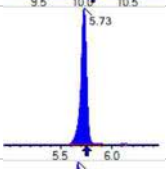
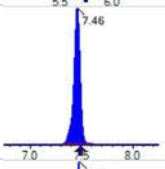
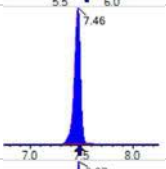
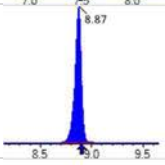
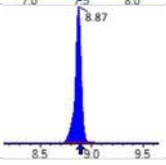
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 602599	(3.60 , 1.00) (0.00 , N/A , 0.0)	375.0	N/A 0.0 0.0	3.9440 [4.0000]	98.6%			
PFPeA	(263.0 / 219.0) 451404 (263.0 / 69.0) 5488	(4.89 , 1.00) (0.00 , N/A , 0.2)	494.5 85.3	0.0122 100.1 100.1	1.8685 [2.0000]	93.4%			
PFHxA	(313.0 / 269.0) 322563 (313.0 / 119.0) 31777	(6.04 , 1.00) (0.00 , N/A , 0.1)	426.1 177.8	0.0985 98.7 98.7	1.0336 [1.0000]	103.4%			
PFHpA	(363.0 / 319.0) 280182 (363.0 / 169.0) 82998	(6.97 , 1.00) (0.00 , N/A , -0.2)	333.6 276.2	0.2962 99.4 99.4	0.9844 [1.0000]	98.4%			
PFOA	(413.0 / 369.0) 342368 (413.0 / 169.0) 123246	(7.79 , 1.00) (0.00 , N/A , 0.0)	336.4 313.5	0.3600 108.6 108.6	0.9580 [1.0000]	95.8%			
PFNA	(463.0 / 419.0) 278426 (463.0 / 169.0) 61311	(8.53 , 1.00) (0.00 , N/A , 0.0)	548.7 319.4	0.2202 95.9 95.9	0.9760 [1.0000]	97.6%			
PFDA	(513.0 / 469.0) 414881 (513.0 / 169.0) 32327	(9.20 , 1.00) (0.00 , N/A , 0.4)	267.1 935.6	0.0779 81.6 81.6	1.1603 [1.0000]	116.0%			
PFUnA	(563.0 / 519.0) 406885 (563.0 / 169.0) 53164	(9.67 , 1.00) (0.00 , N/A , 0.2)	565.8 264.6	0.1307 130.7 130.7	0.8909 [1.0000]	89.1%			
PFDoA	(613.0 / 569.0) 480280 (613.0 / 169.0) 46825	(9.86 , 1.00) (0.00 , N/A , 0.0)	559.1 254.6	0.0975 79.5 79.5	0.9692 [1.0000]	96.9%			
PFTrDA	(663.0 / 619.0) 432057 (663.0 / 169.0) 80858	(9.99 , 1.01) (N/A , -0.01 , -0.1)	714.3 391.4	0.1871 95.8 95.8	0.9180 [1.0000]	91.8%			
PFTeDA	(713.0 / 669.0) 331002 (713.0 / 169.0) 72195	(10.09 , 1.00) (0.00 , N/A , -0.2)	442.7 194.1	0.2181 114.6 114.6	0.8870 [1.0000]	88.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (3)
Acquired: 2023/01/05 - 18:46

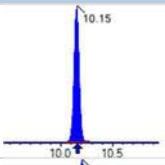
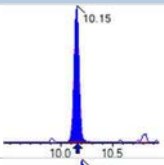
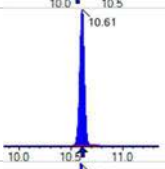
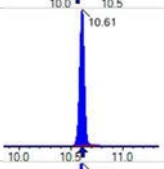
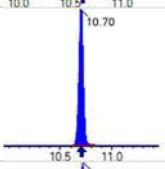
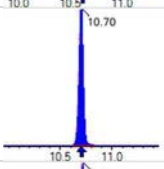
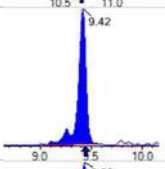
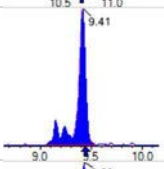
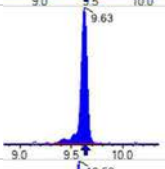
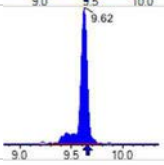
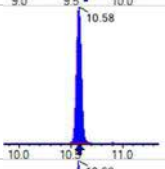
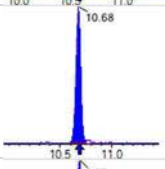
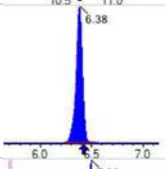
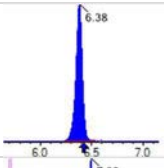
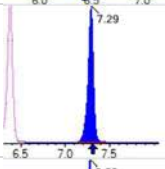
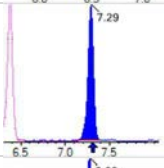
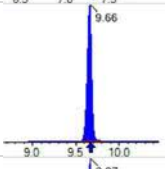
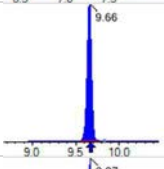
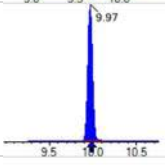
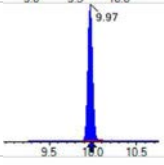
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 464555 (299.0 / 99.0) 281523	(5.98 , 1.00) (0.00 , N/A , 0.0)	528.3 436.7	0.6060 93.0 93.0	0.8410 [0.8847]	95.1%			
PFPeS	(349.0 / 80.0) 848151 (349.0 / 99.0) 290922	(7.01 , 0.89) (N/A , -0.04 , 0.1)	581.8 571.2	0.3430 93.3 93.3	0.9377 [0.9384]	99.9%			
PFHxS	(399.0 / 80.0) 762457 (399.0 / 99.0) 260073	(7.89 , 1.00) (0.00 , N/A , 0.1)	627.9 544.0	0.3411 98.9 98.9	0.9145 [0.9110]	100.4%			
PFHpS	(449.0 / 80.0) 675826 (449.0 / 99.0) 193612	(8.66 , 0.93) (N/A , -0.04 , 0.0)	632.0 379.7	0.2865 102.4 102.4	0.9153 [0.9514]	96.2%			
PFOS	(499.0 / 80.0) 731227 (499.0 / 99.0) 187658	(9.33 , 1.00) (0.00 , N/A , 0.1)	246.4 567.8	0.2566 114.2 114.2	0.7698 [0.9275]	83.0%			
PFNS	(549.0 / 80.0) 904477 (549.0 / 99.0) 219591	(9.71 , 1.04) (N/A , -0.01 , -0.1)	821.3 643.6	0.2428 96.1 96.1	0.9086 [0.9599]	94.7%			
PFDS	(599.0 / 80.0) 1036064 (599.0 / 99.0) 234026	(9.88 , 1.06) (N/A , -0.01 , -0.1)	645.9 593.9	0.2259 97.5 97.5	0.9580 [0.9631]	99.5%			
PFDoS	(699.0 / 80.0) 429512 (699.0 / 99.0) 92192	(10.08 , 1.08) (N/A , 0.00 , 0.1)	915.4 470.9	0.2146 92.4 92.4	0.9434 [0.9696]	97.3%			
4:2FTS	(327.0 / 307.0) 1746726 (327.0 / 81.0) 1171162	(5.72 , 1.00) (0.00 , N/A , -0.1)	593.4 462.5	0.6705 122.1 122.1	3.2660 [3.7381]	87.4%			
6:2FTS	(427.0 / 407.0) 1273135 (427.0 / 81.0) 1005357	(7.46 , 1.00) (0.00 , N/A , -0.3)	764.7 739.5	0.7897 108.7 108.7	3.9174 [3.7962]	103.2%			
8:2FTS	(527.0 / 507.0) 1243456 (527.0 / 81.0) 846383	(8.87 , 1.00) (0.00 , N/A , 0.0)	541.1 729.4	0.6807 102.0 102.0	3.6643 [3.8332]	95.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (3)
Acquired: 2023/01/05 - 18:46

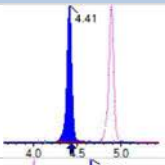
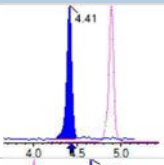
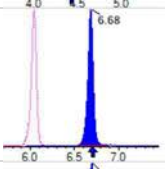
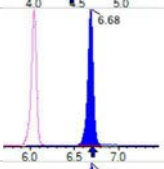
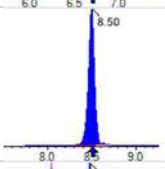
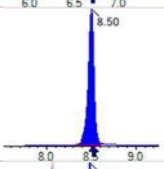
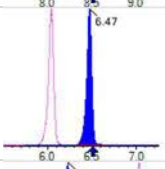
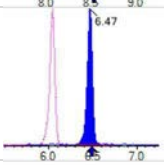
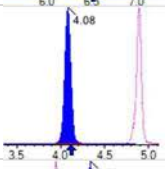
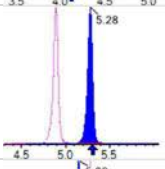
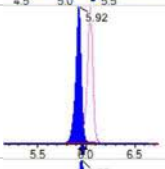
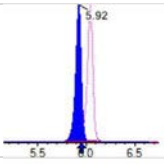
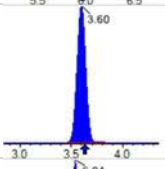
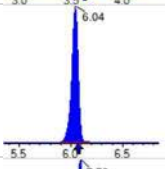
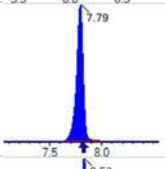
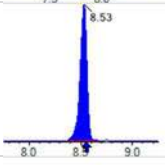
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 990255 (498.0 / 478.0) 21936	(10.15 , 1.00) (0.00 , N/A , 0.0)	1139.8 193.3	0.0222 93.5 93.5	1.1306 [1.0000]	113.1%			
NMeFOSA	(512.0 / 219.0) 678787 (512.0 / 169.0) 486547	(10.61 , 1.00) (0.00 , N/A , 0.0)	813.8 753.0	0.7168 100.0 100.0	4.1059 [4.0000]	102.6%			
NEtFOSA	(526.0 / 219.0) 686511 (526.0 / 169.0) 693271	(10.70 , 1.00) (0.00 , N/A , 0.0)	889.4 788.2	1.0098 93.8 93.8	4.0898 [4.0000]	102.2%			
NMeFOSAA	(570.0 / 419.0) 252092 (570.0 / 483.0) 124752	(9.42 , 1.00) (0.00 , N/A , 0.1)	211.5 215.0	0.4949 103.7 103.7	0.9543 [1.0000]	95.4%			
NEtFOSAA	(584.0 / 419.0) 203475 (584.0 / 526.0) 142773	(9.63 , 1.00) (0.01 , N/A , 0.1)	616.2 420.6	0.7017 110.4 110.4	0.8960 [1.0000]	89.6%			
NMeFOSE	(616.0 / 59.0) 158885	(10.58 , 1.00) (0.01 , N/A , 0.0)	684.3	N/A 0.0 0.0	4.1781 [4.0000]	104.5%			
NEtFOSE	(630.0 / 59.0) 26272	(10.68 , 1.00) (0.01 , N/A , 0.0)	462.3	N/A 0.0 0.0	3.8016 [4.0000]	95.0%			
HFPO-DA	(285.0 / 169.0) 229018 (285.0 / 185.0) 684867	(6.38 , 1.00) (0.00 , N/A , 0.1)	619.3 600.4	2.9904 92.8 92.8	2.1423 [2.0000]	107.1%			
ADONA	(377.0 / 85.0) 1018936 (377.0 / 251.0) 135335	(7.29 , 1.14) (N/A , -0.04 , 0.1)	525.2 361.1	0.1328 106.3 106.3	1.7795 [1.8854]	94.4%			
9Cl-Pf3ONS	(531.0 / 351.0) 2888589 (533.0 / 353.0) 903395	(9.66 , 1.51) (N/A , -0.01 , 0.1)	777.2 375.8	0.3127 103.3 103.3	1.8285 [1.8665]	98.0%			
11Cl-PF3OUDS	(631.0 / 451.0) 1360819 (633.0 / 453.0) 467178	(9.97 , 1.56) (N/A , -0.01 , 0.0)	612.1 888.9	0.3433 119.4 119.4	1.7940 [1.8864]	95.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (3)
Acquired: 2023/01/05 - 18:46

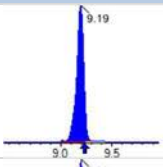
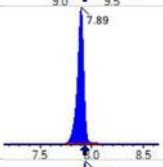
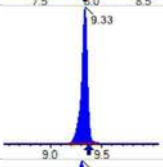
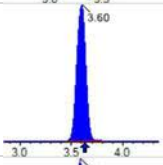
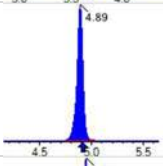
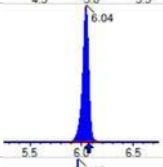
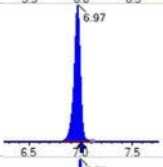
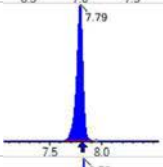
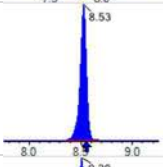
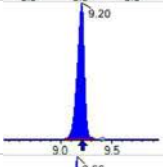
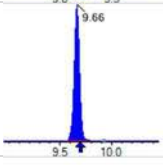
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 26349 (241.0 / 117.0) 41158	(4.41 , 0.90) (N/A , -0.03 , 0.0)	414.3 210.5	1.5620 100.1 100.1	3.7214 [4.0000]	93.0%			
5:3FTCA	(341.0 / 236.7) 195008 (341.0 / 217.0) 341321	(6.68 , 1.11) (N/A , -0.04 , 0.0)	376.4 425.1	1.7503 94.2 94.2	4.0153 [4.0000]	100.4%			
7:3FTCA	(441.0 / 317.0) 266780 (441.0 / 337.0) 219399	(8.50 , 1.41) (N/A , -0.04 , -0.1)	376.5 335.6	0.8224 102.5 102.5	3.9086 [4.0000]	97.7%			
PFEESA	(315.0 / 135.0) 574486 (315.0 / 83.0) 166165	(6.47 , 1.07) (N/A , -0.04 , 0.2)	725.3 408.4	0.2892 91.9 91.9	1.9162 [1.7849]	107.4%			
PFMPA	(229.0 / 85.0) 106073	(4.08 , 0.83) (N/A , -0.03 , 0.0)	686.7	N/A 0.0 0.0	1.7470 [2.0000]	87.4%			
PFMBA	(279.0 / 85.0) 342444	(5.28 , 1.08) (N/A , -0.04 , 0.0)	741.5	N/A 0.0 0.0	1.8738 [2.0000]	93.7%			
NFDHA	(295.0 / 201.0) 288528 (295.0 / 85.0) 285226	(5.92 , 0.98) (N/A , -0.04 , 0.1)	453.5 398.0	0.9886 101.9 101.9	2.0699 [2.0000]	103.5%			
13C3_PFBA_IIS	(216.0 / 172.0) 167509	(3.60 , N/A) (N/A , -0.03 , N/A)	690.8	N/A	0.9910 [1.0000]	99.1% { 94.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 297482	(6.04 , N/A) (N/A , -0.04 , N/A)	579.9	N/A	0.9960 [1.0000]	99.6% { 91.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 311210	(7.79 , N/A) (N/A , -0.04 , N/A)	569.6	N/A	0.9407 [1.0000]	94.1% { 86.3% }			
13C5_PFNA_IIS	(468.0 / 423.0) 307821	(8.53 , N/A) (N/A , -0.04 , N/A)	560.5	N/A	1.1041 [1.0000]	110.4% { 102.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (3)
Acquired: 2023/01/05 - 18:46

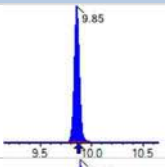
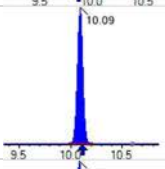
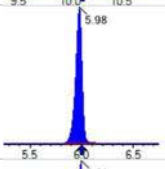
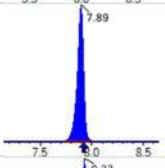
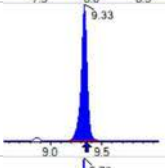
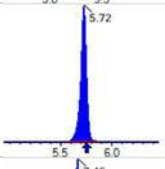
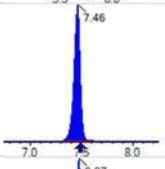
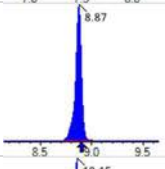
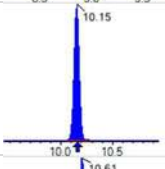
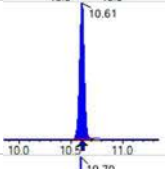
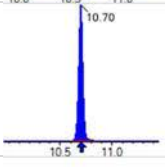
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 298404	(9.19 , N/A) (N/A , -0.04 , N/A)	332.0	N/A	0.9543 [1.0000]	95.4% { 76.3% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 601635	(7.89 , N/A) (N/A , -0.04 , N/A)	513.8	N/A	1.0244 [1.0000]	102.4% { 105.3% }			
13C4_PFOS_IIS	(503.0 / 79.9) 623266	(9.33 , N/A) (N/A , -0.03 , N/A)	547.4	N/A	1.0558 [1.0000]	105.6% { 96.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1331976	(3.60 , N/A) (N/A , -0.03 , N/A)	666.2	N/A	7.9831 [8.0000]	99.8% { 93.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1026227	(4.89 , N/A) (N/A , -0.03 , N/A)	668.7	N/A	4.2641 [4.0000]	106.6% { 101.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 635473	(6.04 , N/A) (N/A , -0.04 , N/A)	529.7	N/A	2.0405 [2.0000]	102.0% { 97.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 556487	(6.97 , N/A) (N/A , -0.05 , N/A)	545.0	N/A	1.9954 [2.0000]	99.8% { 100.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 677355	(7.79 , N/A) (N/A , -0.04 , N/A)	667.1	N/A	2.1968 [2.0000]	109.8% { 102.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 292036	(8.53 , N/A) (N/A , -0.04 , N/A)	441.8	N/A	0.9556 [1.0000]	95.6% { 99.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 345933	(9.20 , N/A) (N/A , -0.03 , N/A)	354.9	N/A	0.9881 [1.0000]	98.8% { 79.4% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 509568	(9.66 , N/A) (N/A , -0.01 , N/A)	449.1	N/A	1.1003 [1.0000]	110.0% { 104.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (3)
Acquired: 2023/01/05 - 18:46

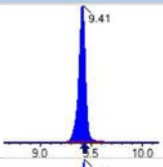
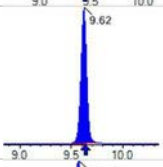
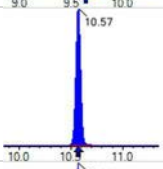
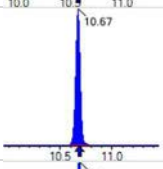
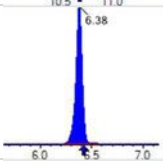
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 543169	(9.85 , N/A) (N/A , -0.01 , N/A)	778.5	N/A	1.1579 [1.0000]	115.8% { 103.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 374585	(10.09 , N/A) (N/A , 0.00 , N/A)	1058.5	N/A	1.1160 [1.0000]	111.6% { 109.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1745790	(5.98 , N/A) (N/A , -0.04 , N/A)	530.7	N/A	2.0850 [2.0000]	104.2% { 105.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 990589	(7.89 , N/A) (N/A , -0.04 , N/A)	717.8	N/A	1.9895 [2.0000]	99.5% { 95.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1532691	(9.33 , N/A) (N/A , -0.03 , N/A)	296.5	N/A	2.0025 [2.0000]	100.1% { 103.5% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 618800	(5.72 , N/A) (N/A , -0.03 , N/A)	610.1	N/A	4.3606 [4.0000]	109.0% { 109.7% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 808878	(7.46 , N/A) (N/A , -0.04 , N/A)	707.9	N/A	4.0873 [4.0000]	102.2% { 99.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 897397	(8.87 , N/A) (N/A , -0.03 , N/A)	697.6	N/A	4.4424 [4.0000]	111.1% { 112.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1580975	(10.15 , N/A) (N/A , -0.01 , N/A)	893.7	N/A	1.8534 [2.0000]	92.7% { 87.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 360453	(10.61 , N/A) (N/A , -0.01 , N/A)	707.2	N/A	1.9124 [2.0000]	95.6% { 104.5% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 335085	(10.70 , N/A) (N/A , -0.01 , N/A)	1232.5	N/A	1.9543 [2.0000]	97.7% { 98.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (3)
Acquired: 2023/01/05 - 18:46

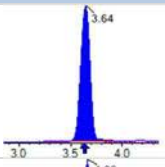
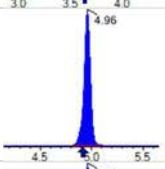
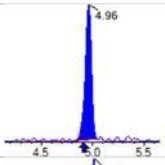
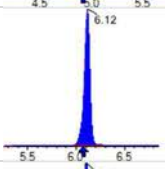
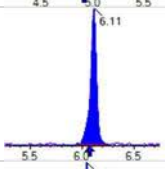
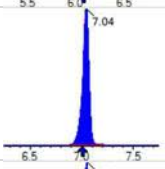
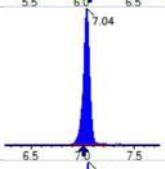
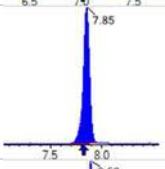
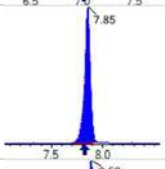
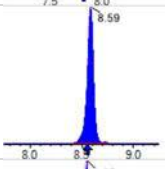
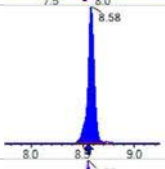
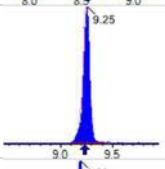
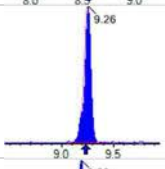
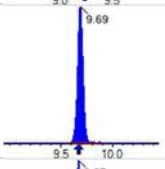
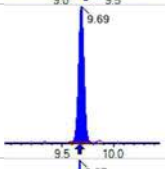
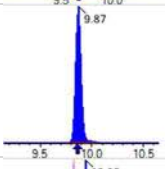
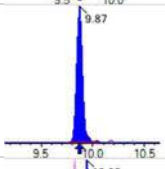
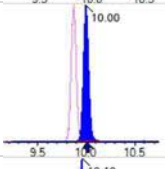
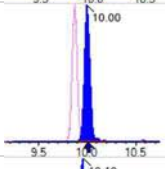
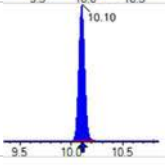
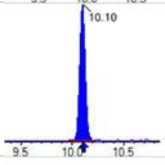
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1134404	(9.41 , N/A) (N/A , -0.02 , N/A)	402.6	N/A	4.2718 [4.0000]	106.8% { 116.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1013585	(9.62 , N/A) (N/A , -0.01 , N/A)	196.6	N/A	4.3995 [4.0000]	110.0% { 107.2% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 610982	(10.57 , N/A) (N/A , -0.01 , N/A)	921.9	N/A	20.1221 [20.0000]	100.6% { 104.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 261058	(10.67 , N/A) (N/A , -0.01 , N/A)	1064.8	N/A	18.8605 [20.0000]	94.3% { 89.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1416671	(6.38 , N/A) (N/A , -0.04 , N/A)	599.2	N/A	8.2565 [8.0000]	103.2% { 97.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (4)
Acquired: 2023/01/05 - 18:59

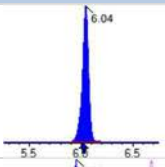
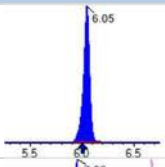
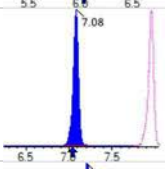
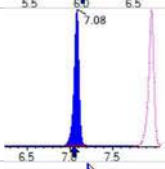
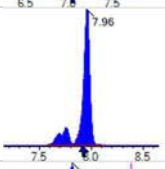
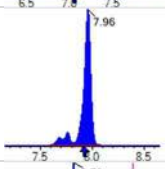
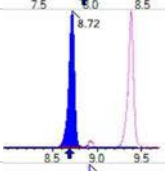
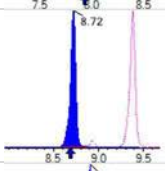
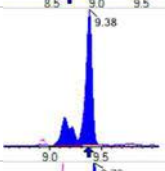
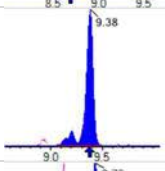
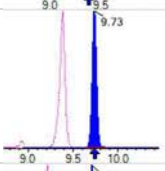
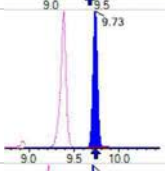
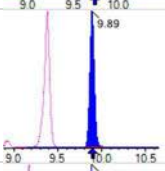
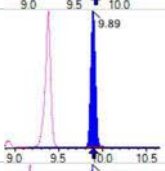
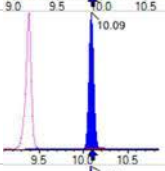
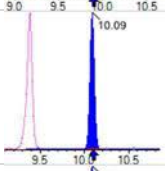
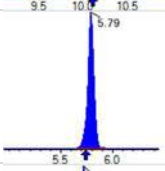
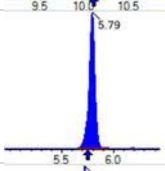
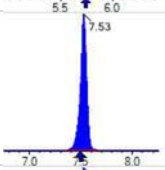
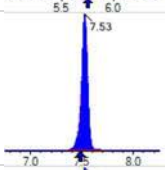
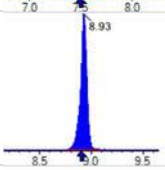
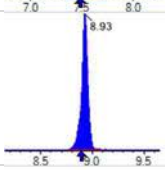
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 1241971	(3.64 , 1.00) (0.00 , N/A , 0.0)	453.1	N/A 0.0 0.0	8.0946 [8.0000]	101.2%			
PFPeA	(263.0 / 219.0) 892078 (263.0 / 69.0) 11319	(4.96 , 1.00) (0.00 , N/A , -0.1)	719.6 123.4	0.0127 104.5 104.5	4.1655 [4.0000]	104.1%			
PFHxA	(313.0 / 269.0) 640777 (313.0 / 119.0) 56502	(6.12 , 1.00) (0.00 , N/A , 0.2)	551.2 247.4	0.0882 88.3 88.3	2.0688 [2.0000]	103.4%			
PFHpA	(363.0 / 319.0) 588597 (363.0 / 169.0) 177193	(7.04 , 1.00) (0.00 , N/A , 0.2)	531.8 388.7	0.3010 101.0 101.0	2.0967 [2.0000]	104.8%			
PFOA	(413.0 / 369.0) 705923 (413.0 / 169.0) 234634	(7.85 , 1.00) (0.00 , N/A , 0.0)	523.5 417.4	0.3324 100.3 100.3	2.0716 [2.0000]	103.6%			
PFNA	(463.0 / 419.0) 498004 (463.0 / 169.0) 109878	(8.59 , 1.00) (0.00 , N/A , 0.2)	643.8 438.9	0.2206 96.1 96.1	1.9086 [2.0000]	95.4%			
PFDA	(513.0 / 469.0) 720609 (513.0 / 169.0) 74339	(9.25 , 1.00) (0.01 , N/A , -0.1)	455.4 360.9	0.1032 108.0 108.0	2.1021 [2.0000]	105.1%			
PFUnA	(563.0 / 519.0) 924684 (563.0 / 169.0) 100451	(9.69 , 1.00) (0.00 , N/A , 0.0)	517.1 322.8	0.1086 108.6 108.6	1.9697 [2.0000]	98.5%			
PFDoA	(613.0 / 569.0) 865631 (613.0 / 169.0) 119812	(9.87 , 1.00) (0.00 , N/A , -0.1)	640.9 305.3	0.1384 112.8 112.8	1.8869 [2.0000]	94.3%			
PFTrDA	(663.0 / 619.0) 966508 (663.0 / 169.0) 202814	(10.00 , 1.01) (N/A , 0.00 , -0.1)	510.6 389.3	0.2098 107.4 107.4	2.2182 [2.0000]	110.9%			
PFTeDA	(713.0 / 669.0) 656402 (713.0 / 169.0) 147841	(10.10 , 1.00) (0.00 , N/A , 0.1)	633.7 265.3	0.2252 118.4 118.4	1.6973 [2.0000]	84.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (4)
Acquired: 2023/01/05 - 18:59

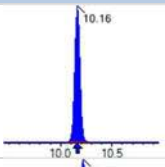
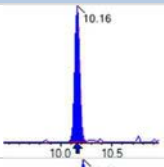
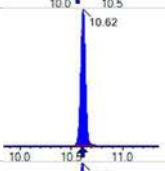
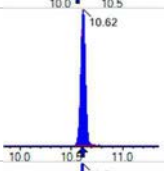
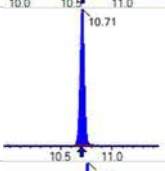
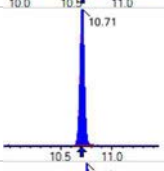
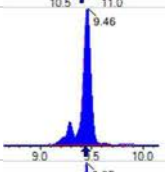
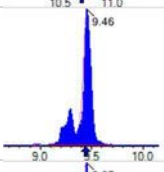
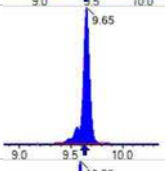
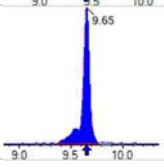
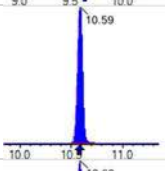
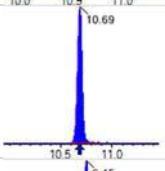
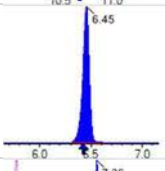
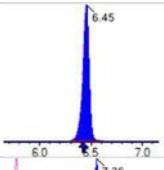
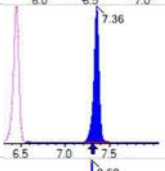
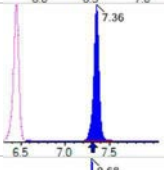
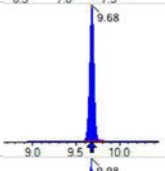
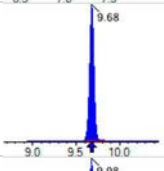
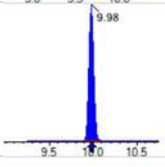
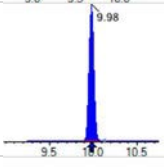
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 965122 (299.0 / 99.0) 599035	(6.04 , 1.00) (0.00 , N/A , -0.1)	530.1 604.0	0.6207 95.3 95.3	1.8337 [1.7695]	103.6%			
PFPeS	(349.0 / 80.0) 1753088 (349.0 / 99.0) 637094	(7.08 , 0.89) (N/A , 0.02 , -0.1)	622.3 765.4	0.3634 98.8 98.8	2.0171 [1.8768]	107.5%			
PFHxS	(399.0 / 80.0) 1505393 (399.0 / 99.0) 504553	(7.96 , 1.00) (0.00 , N/A , 0.1)	705.3 936.3	0.3352 97.2 97.2	1.8792 [1.8220]	103.1%			
PFHpS	(449.0 / 80.0) 1268144 (449.0 / 99.0) 377376	(8.72 , 0.93) (N/A , 0.02 , 0.0)	641.5 617.1	0.2976 106.4 106.4	1.8877 [1.9028]	99.2%			
PFOS	(499.0 / 80.0) 1493373 (499.0 / 99.0) 336013	(9.38 , 1.00) (0.00 , N/A , 0.1)	290.2 444.3	0.2250 100.2 100.2	1.7859 [1.8550]	96.3%			
PFNS	(549.0 / 80.0) 2062636 (549.0 / 99.0) 489856	(9.73 , 1.04) (N/A , 0.01 , 0.1)	749.4 550.5	0.2375 94.0 94.0	2.2776 [1.9198]	118.6%			
PFDS	(599.0 / 80.0) 2013353 (599.0 / 99.0) 502395	(9.89 , 1.05) (N/A , 0.01 , -0.1)	1047.8 916.7	0.2495 107.7 107.7	2.0463 [1.9262]	106.2%			
PFDoS	(699.0 / 80.0) 808654 (699.0 / 99.0) 177847	(10.09 , 1.08) (N/A , 0.00 , 0.1)	754.9 643.9	0.2199 94.7 94.7	1.9523 [1.9391]	100.7%			
4:2FTS	(327.0 / 307.0) 3809983 (327.0 / 81.0) 2110422	(5.79 , 1.00) (0.00 , N/A , -0.1)	805.2 587.1	0.5539 100.9 100.9	7.2366 [7.4762]	96.8%			
6:2FTS	(427.0 / 407.0) 2366789 (427.0 / 81.0) 1738498	(7.53 , 1.00) (0.00 , N/A , 0.1)	667.2 763.8	0.7345 101.1 101.1	8.1890 [7.5923]	107.9%			
8:2FTS	(527.0 / 507.0) 2335339 (527.0 / 81.0) 1507638	(8.93 , 1.00) (0.00 , N/A , 0.1)	514.2 702.2	0.6456 96.8 96.8	8.6499 [7.6663]	112.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (4)
Acquired: 2023/01/05 - 18:59

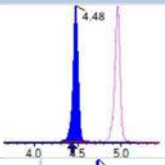
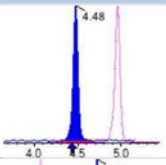
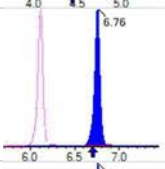
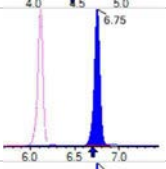
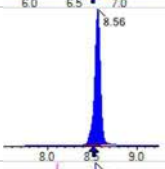
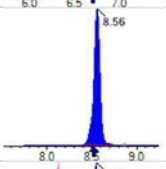
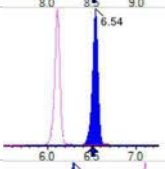
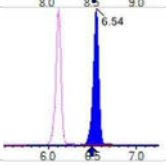
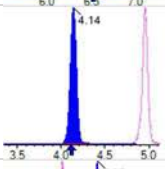
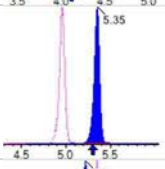
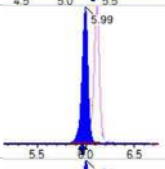
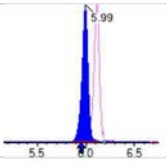
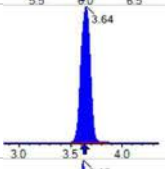
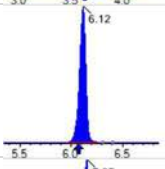
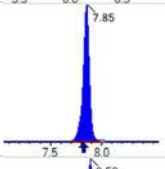
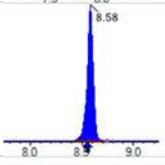
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 1982308 (498.0 / 478.0) 37265	(10.16 , 1.00) (0.00 , N/A , 0.1)	1268.3 192.9	0.0188 79.3 79.3	1.9472 [2.0000]	97.4%			
NMeFOSA	(512.0 / 219.0) 1412897 (512.0 / 169.0) 985756	(10.62 , 1.00) (0.00 , N/A , 0.0)	845.3 906.2	0.6977 97.3 97.3	9.0051 [8.0000]	112.6%			
NEtFOSA	(526.0 / 219.0) 1383077 (526.0 / 169.0) 1492295	(10.71 , 1.00) (0.00 , N/A , 0.0)	879.8 960.9	1.0790 100.2 100.2	8.5550 [8.0000]	106.9%			
NMeFOSAA	(570.0 / 419.0) 436850 (570.0 / 483.0) 253930	(9.46 , 1.00) (0.00 , N/A , -0.1)	309.0 329.7	0.5813 121.8 121.8	2.2604 [2.0000]	113.0%			
NEtFOSAA	(584.0 / 419.0) 421008 (584.0 / 526.0) 235165	(9.65 , 1.00) (0.01 , N/A , -0.1)	738.1 414.5	0.5586 87.9 87.9	2.3111 [2.0000]	115.6%			
NMeFOSE	(616.0 / 59.0) 288752	(10.59 , 1.00) (0.01 , N/A , 0.0)	766.1	N/A 0.0 0.0	8.2033 [8.0000]	102.5%			
NEtFOSE	(630.0 / 59.0) 58684	(10.69 , 1.00) (0.01 , N/A , 0.0)	591.0	N/A 0.0 0.0	8.1809 [8.0000]	102.3%			
HFPO-DA	(285.0 / 169.0) 413587 (285.0 / 185.0) 1363190	(6.45 , 1.00) (0.00 , N/A , 0.0)	677.5 684.4	3.2960 102.3 102.3	3.8803 [4.0000]	97.0%			
ADONA	(377.0 / 85.0) 2208428 (377.0 / 251.0) 292911	(7.36 , 1.14) (N/A , 0.02 , 0.1)	690.0 475.2	0.1326 106.1 106.1	3.8683 [3.7708]	102.6%			
9Cl-Pf3ONS	(531.0 / 351.0) 5672059 (533.0 / 353.0) 1894819	(9.68 , 1.50) (N/A , 0.01 , 0.0)	475.0 940.2	0.3341 110.3 110.3	3.6366 [3.7330]	97.4%			
11Cl-PF3OUDS	(631.0 / 451.0) 3009656 (633.0 / 453.0) 906717	(9.98 , 1.55) (N/A , 0.00 , -0.1)	1661.8 1312.4	0.3013 104.8 104.8	3.9795 [3.7728]	105.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (4)
Acquired: 2023/01/05 - 18:59

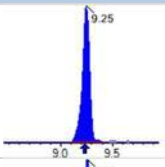
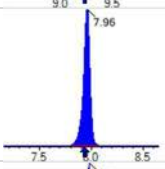
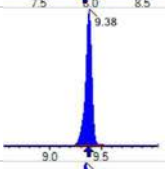
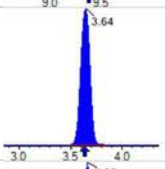
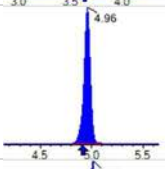
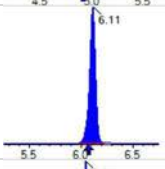
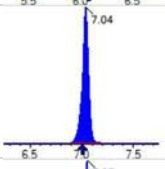
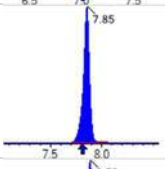
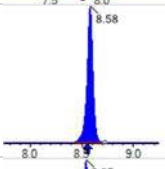
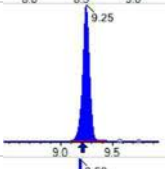
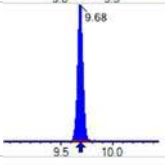
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 55153 (241.0 / 117.0) 83587	(4.48 , 0.90) (N/A , 0.04 , 0.0)	455.7 320.8	1.5155 97.1 97.1	8.7874 [8.0000]	109.8%			
5:3FTCA	(341.0 / 236.7) 376659 (341.0 / 217.0) 669562	(6.76 , 1.11) (N/A , 0.03 , 0.2)	535.6 477.8	1.7776 95.7 95.7	7.8140 [8.0000]	97.7%			
7:3FTCA	(441.0 / 317.0) 518885 (441.0 / 337.0) 404351	(8.56 , 1.40) (N/A , 0.02 , 0.2)	428.2 439.6	0.7793 97.2 97.2	7.6596 [8.0000]	95.7%			
PFEESA	(315.0 / 135.0) 1038904 (315.0 / 83.0) 319154	(6.54 , 1.07) (N/A , 0.03 , 0.0)	648.5 472.4	0.3072 97.6 97.6	3.4914 [3.5698]	97.8%			
PFMPA	(229.0 / 85.0) 228350	(4.14 , 0.83) (N/A , 0.03 , 0.0)	853.0	N/A 0.0 0.0	4.2427 [4.0000]	106.1%			
PFMBA	(279.0 / 85.0) 656026	(5.35 , 1.08) (N/A , 0.04 , 0.0)	625.9	N/A 0.0 0.0	4.0494 [4.0000]	101.2%			
NFDHA	(295.0 / 201.0) 522462 (295.0 / 85.0) 503197	(5.99 , 0.98) (N/A , 0.03 , 0.0)	623.2 492.5	0.9631 99.3 99.3	3.7763 [4.0000]	94.4%			
13C3_PFBA_IIS	(216.0 / 172.0) 167701	(3.64 , N/A) (N/A , 0.02 , N/A)	609.3	N/A	0.9922 [1.0000]	99.2% { 94.9% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 283273	(6.12 , N/A) (N/A , 0.03 , N/A)	455.3	N/A	0.9484 [1.0000]	94.8% { 87.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 351745	(7.85 , N/A) (N/A , 0.01 , N/A)	423.4	N/A	1.0632 [1.0000]	106.3% { 97.5% }			
13C5_PFNA_IIS	(468.0 / 423.0) 254496	(8.58 , N/A) (N/A , 0.02 , N/A)	433.7	N/A	0.9128 [1.0000]	91.3% { 85.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (4)
Acquired: 2023/01/05 - 18:59

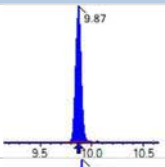
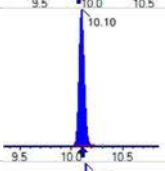
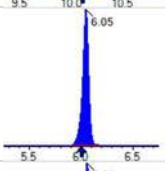
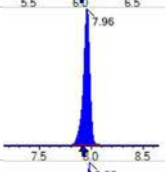
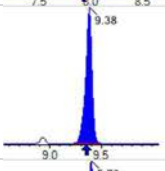
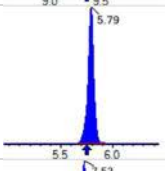
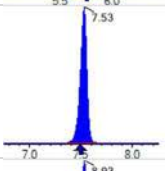
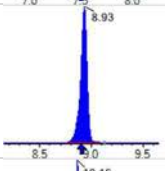
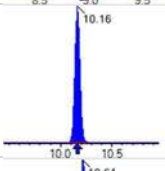
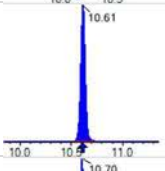
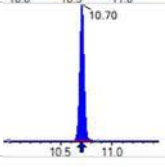
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 277401	(9.25 , N/A) (N/A , 0.02 , N/A)	345.7	N/A	0.8871 [1.0000]	88.7% { 70.9% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 579027	(7.96 , N/A) (N/A , 0.02 , N/A)	1003.4	N/A	0.9859 [1.0000]	98.6% { 101.3% }			
13C4_PFOS_IIS	(503.0 / 79.9) 598529	(9.38 , N/A) (N/A , 0.01 , N/A)	556.7	N/A	1.0139 [1.0000]	101.4% { 92.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1337595	(3.64 , N/A) (N/A , 0.02 , N/A)	758.4	N/A	8.0076 [8.0000]	100.1% { 93.4% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 909711	(4.96 , N/A) (N/A , 0.03 , N/A)	634.7	N/A	3.9696 [4.0000]	99.2% { 90.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 630714	(6.11 , N/A) (N/A , 0.03 , N/A)	454.6	N/A	2.1268 [2.0000]	106.3% { 96.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 548864	(7.04 , N/A) (N/A , 0.03 , N/A)	520.0	N/A	2.0668 [2.0000]	103.3% { 98.7% }			
13C8_PFOA_EIS	(421.0 / 376.0) 645880	(7.85 , N/A) (N/A , 0.02 , N/A)	540.3	N/A	1.8534 [2.0000]	92.7% { 98.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 267116	(8.58 , N/A) (N/A , 0.01 , N/A)	341.3	N/A	1.0572 [1.0000]	105.7% { 90.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 331647	(9.25 , N/A) (N/A , 0.02 , N/A)	256.7	N/A	1.0190 [1.0000]	101.9% { 76.1% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 523751	(9.68 , N/A) (N/A , 0.01 , N/A)	968.1	N/A	1.2165 [1.0000]	121.7% { 107.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (4)
Acquired: 2023/01/05 - 18:59

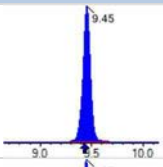
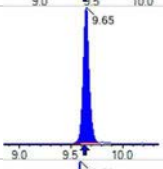
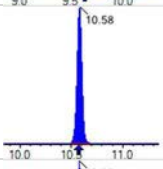
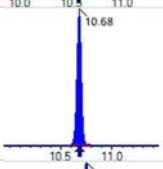
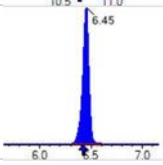
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 502878	(9.87 , N/A) (N/A , 0.01 , N/A)	408.5	N/A	1.1532 [1.0000]	115.3% { 95.6% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 388190	(10.10 , N/A) (N/A , 0.01 , N/A)	1044.9	N/A	1.2441 [1.0000]	124.4% { 113.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1663466	(6.05 , N/A) (N/A , 0.03 , N/A)	620.0	N/A	2.0642 [2.0000]	103.2% { 100.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 951792	(7.96 , N/A) (N/A , 0.02 , N/A)	792.8	N/A	1.9862 [2.0000]	99.3% { 92.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1394400	(9.38 , N/A) (N/A , 0.02 , N/A)	284.9	N/A	1.8972 [2.0000]	94.9% { 94.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 609167	(5.79 , N/A) (N/A , 0.03 , N/A)	709.5	N/A	4.4604 [4.0000]	111.5% { 108.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 719341	(7.53 , N/A) (N/A , 0.02 , N/A)	676.4	N/A	3.7767 [4.0000]	94.4% { 88.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 713969	(8.93 , N/A) (N/A , 0.02 , N/A)	536.3	N/A	3.6724 [4.0000]	91.8% { 89.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1837511	(10.16 , N/A) (N/A , 0.00 , N/A)	1157.5	N/A	2.2432 [2.0000]	112.2% { 101.4% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 342091	(10.61 , N/A) (N/A , 0.00 , N/A)	864.6	N/A	1.8900 [2.0000]	94.5% { 99.1% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 322726	(10.70 , N/A) (N/A , 0.00 , N/A)	754.2	N/A	1.9600 [2.0000]	98.0% { 95.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (4)
Acquired: 2023/01/05 - 18:59

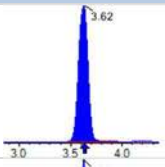
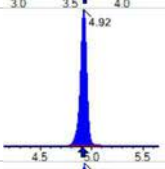
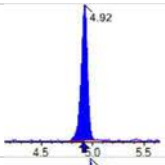
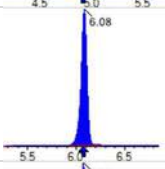
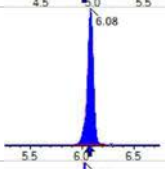
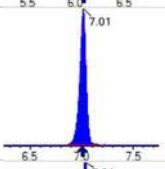
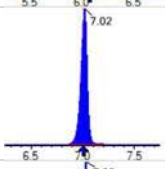
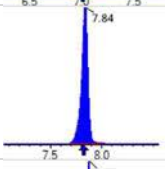
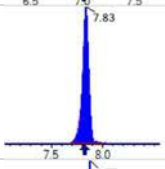
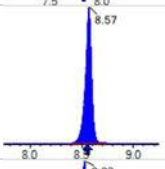
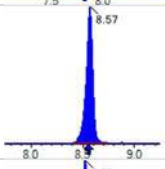
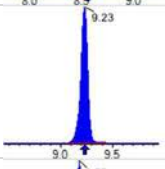
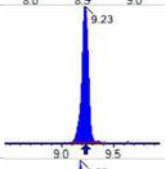
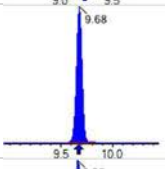
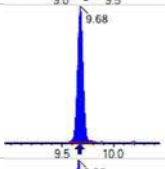
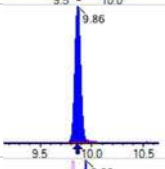
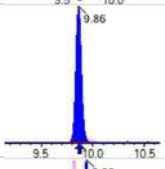
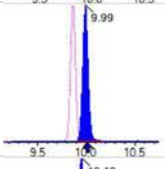
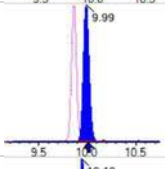
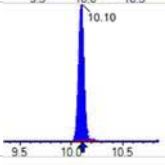
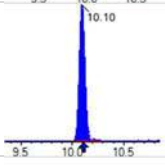
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 829882	(9.45 , N/A) (N/A , 0.02 , N/A)	326.2	N/A	3.2542 [4.0000]	81.4% { 84.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 813042	(9.65 , N/A) (N/A , 0.01 , N/A)	117.7	N/A	3.6749 [4.0000]	91.9% { 86.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 565538	(10.58 , N/A) (N/A , 0.00 , N/A)	823.9	N/A	19.3952 [20.0000]	97.0% { 96.2% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 270976	(10.68 , N/A) (N/A , 0.00 , N/A)	1416.1	N/A	20.3862 [20.0000]	101.9% { 92.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1412477	(6.45 , N/A) (N/A , 0.03 , N/A)	724.4	N/A	8.6450 [8.0000]	108.1% { 96.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (5)
Acquired: 2023/01/05 - 19:11

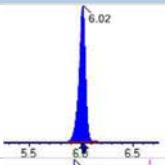
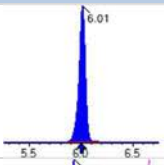
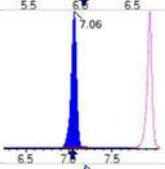
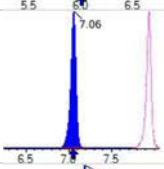
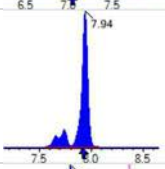
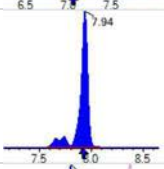
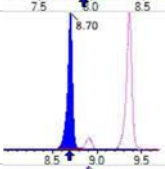
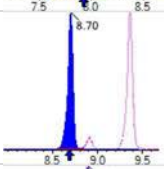
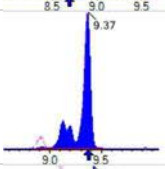
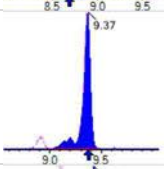
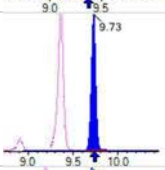
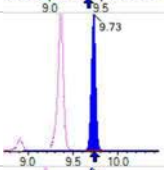
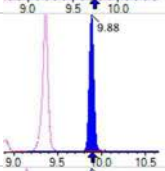
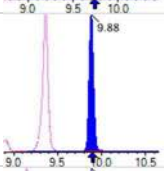
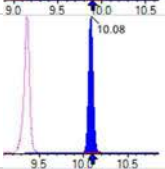
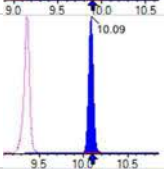
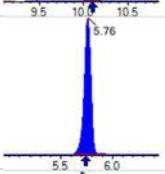
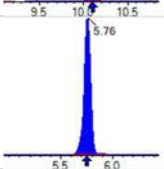
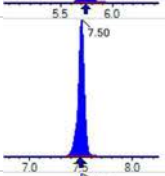
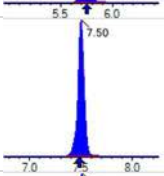
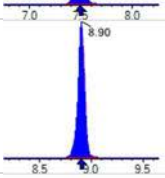
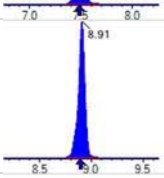
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 3359069	(3.62 , 1.00) (0.00 , N/A , 0.0)	486.6	N/A 0.0 0.0	20.4561 [20.0000]	102.3%			
PFPeA	(263.0 / 219.0) 2409807 (263.0 / 69.0) 29262	(4.92 , 1.00) (0.00 , N/A , 0.1)	552.6 285.7	0.0121 100.0 100.0	10.1394 [10.0000]	101.4%			
PFHxA	(313.0 / 269.0) 1574494 (313.0 / 119.0) 157180	(6.08 , 1.00) (0.00 , N/A , 0.0)	581.5 499.3	0.0998 100.0 100.0	4.9015 [5.0000]	98.0%			
PFHpA	(363.0 / 319.0) 1524647 (363.0 / 169.0) 454416	(7.01 , 1.00) (0.00 , N/A , -0.1)	565.7 469.1	0.2980 100.0 100.0	5.3603 [5.0000]	107.2%			
PFOA	(413.0 / 369.0) 1892542 (413.0 / 169.0) 627071	(7.84 , 1.00) (0.00 , N/A , 0.1)	553.2 535.3	0.3313 100.0 100.0	5.4456 [5.0000]	108.9%			
PFNA	(463.0 / 419.0) 1464759 (463.0 / 169.0) 336214	(8.57 , 1.00) (0.00 , N/A , 0.0)	554.5 451.6	0.2295 100.0 100.0	5.0992 [5.0000]	102.0%			
PFDA	(513.0 / 469.0) 2022440 (513.0 / 169.0) 193188	(9.23 , 1.00) (0.00 , N/A , 0.1)	465.2 316.6	0.0955 100.0 100.0	4.4925 [5.0000]	89.9%			
PFUnA	(563.0 / 519.0) 2382675 (563.0 / 169.0) 238274	(9.68 , 1.00) (0.00 , N/A , 0.0)	754.7 407.4	0.1000 100.0 100.0	5.4352 [5.0000]	108.7%			
PFDoA	(613.0 / 569.0) 2340115 (613.0 / 169.0) 287086	(9.86 , 1.00) (0.00 , N/A , 0.1)	835.2 491.3	0.1227 100.0 100.0	4.8765 [5.0000]	97.5%			
PFTrDA	(663.0 / 619.0) 2266717 (663.0 / 169.0) 442807	(9.99 , 1.01) (N/A , 0.00 , 0.2)	1148.5 460.2	0.1954 100.0 100.0	4.9734 [5.0000]	99.5%			
PFTeDA	(713.0 / 669.0) 1940636 (713.0 / 169.0) 369294	(10.10 , 1.00) (0.00 , N/A , 0.1)	1054.9 449.7	0.1903 100.0 100.0	5.7085 [5.0000]	114.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (5)
Acquired: 2023/01/05 - 19:11

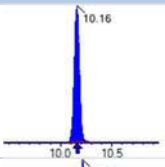
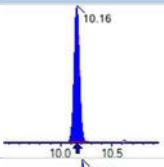
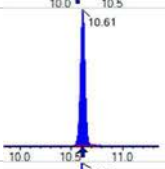
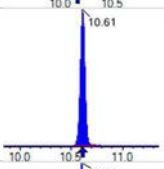
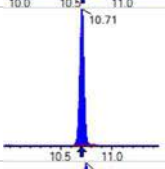
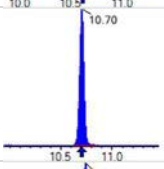
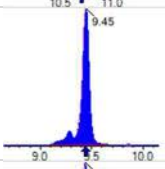
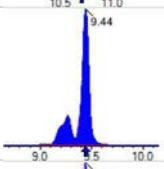
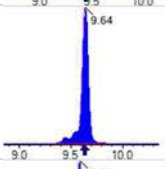
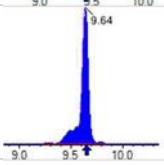
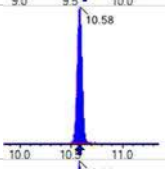
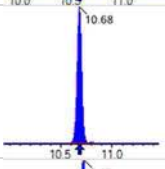
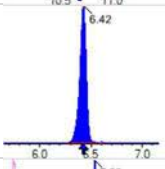
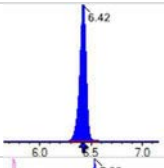
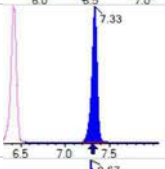
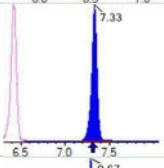
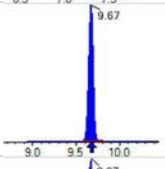
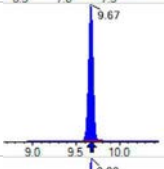
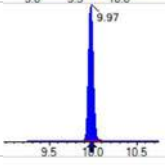
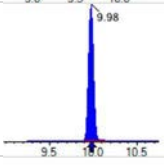
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 2274162 (299.0 / 99.0) 1481795	(6.02 , 1.00) (0.00 , N/A , 0.1)	545.0 452.4	0.6516 100.0 100.0	4.3290 [4.4237]	97.9%			
PFPeS	(349.0 / 80.0) 4217182 (349.0 / 99.0) 1551209	(7.06 , 0.89) (N/A , 0.00 , 0.1)	617.5 631.3	0.3678 100.0 100.0	4.4619 [4.6919]	95.1%			
PFHxS	(399.0 / 80.0) 3876585 (399.0 / 99.0) 1336516	(7.94 , 1.00) (0.00 , N/A , 0.1)	923.3 871.5	0.3448 100.0 100.0	4.4498 [4.5549]	97.7%			
PFHpS	(449.0 / 80.0) 3735762 (449.0 / 99.0) 1044834	(8.70 , 0.93) (N/A , 0.00 , 0.0)	572.4 586.8	0.2797 100.0 100.0	5.2355 [4.7570]	110.1%			
PFOS	(499.0 / 80.0) 4306517 (499.0 / 99.0) 967450	(9.37 , 1.00) (0.00 , N/A , 0.0)	369.1 748.5	0.2246 100.0 100.0	4.9281 [4.6375]	106.3%			
PFNS	(549.0 / 80.0) 5120254 (549.0 / 99.0) 1293514	(9.73 , 1.04) (N/A , 0.00 , 0.0)	831.9 517.8	0.2526 100.0 100.0	5.3229 [4.7994]	110.9%			
PFDS	(599.0 / 80.0) 6083390 (599.0 / 99.0) 1409543	(9.88 , 1.06) (N/A , 0.00 , 0.2)	1212.0 624.3	0.2317 100.0 100.0	5.8210 [4.8155]	120.9%			
PFDoS	(699.0 / 80.0) 2220783 (699.0 / 99.0) 515716	(10.08 , 1.08) (N/A , 0.00 , -0.1)	1555.0 958.0	0.2322 100.0 100.0	5.0477 [4.8478]	104.1%			
4:2FTS	(327.0 / 307.0) 10388188 (327.0 / 81.0) 5703833	(5.76 , 1.00) (0.00 , N/A , 0.2)	623.0 597.9	0.5491 100.0 100.0	21.3102 [18.6906]	114.0%			
6:2FTS	(427.0 / 407.0) 6278640 (427.0 / 81.0) 4559762	(7.50 , 1.00) (0.00 , N/A , 0.3)	855.0 634.1	0.7262 100.0 100.0	19.1245 [18.9808]	100.8%			
8:2FTS	(527.0 / 507.0) 6743345 (527.0 / 81.0) 4498763	(8.90 , 1.00) (0.00 , N/A , -0.4)	494.6 550.8	0.6671 100.0 100.0	22.2718 [19.1658]	116.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (5)
Acquired: 2023/01/05 - 19:11

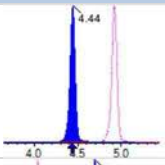
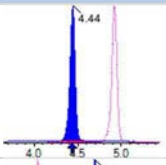
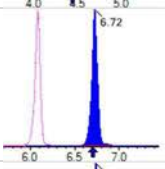
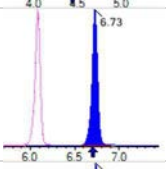
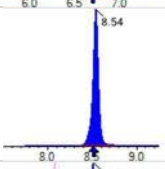
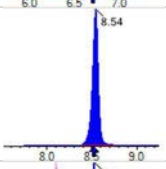
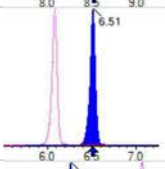
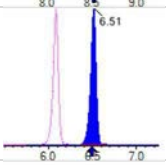
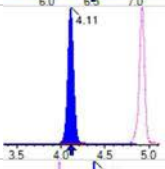
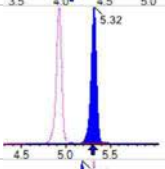
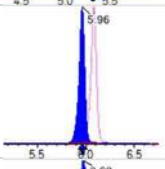
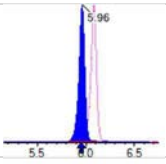
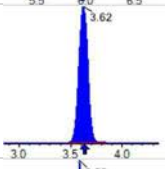
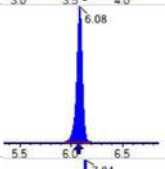
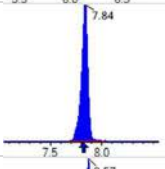
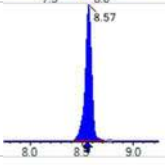
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 4935057 (498.0 / 478.0) 116929	(10.16 , 1.00) (0.00 , N/A , 0.1)	1336.3 839.8	0.0237 100.0 100.0	4.9151 [5.0000]	98.3%			
NMeFOSA	(512.0 / 219.0) 3566794 (512.0 / 169.0) 2557852	(10.61 , 1.00) (0.00 , N/A , 0.1)	807.2 946.2	0.7171 100.0 100.0	22.5375 [20.0000]	112.7%			
NEtFOSA	(526.0 / 219.0) 3486386 (526.0 / 169.0) 3752690	(10.71 , 1.00) (0.00 , N/A , 0.1)	1321.7 1563.5	1.0764 100.0 100.0	20.5338 [20.0000]	102.7%			
NMeFOSAA	(570.0 / 419.0) 1234935 (570.0 / 483.0) 589359	(9.45 , 1.00) (0.01 , N/A , 0.2)	554.8 475.8	0.4772 100.0 100.0	5.4223 [5.0000]	108.4%			
NEtFOSAA	(584.0 / 419.0) 1013995 (584.0 / 526.0) 644571	(9.64 , 1.00) (0.01 , N/A , 0.0)	859.4 481.8	0.6357 100.0 100.0	4.7845 [5.0000]	95.7%			
NMeFOSE	(616.0 / 59.0) 753363	(10.58 , 1.00) (0.01 , N/A , 0.0)	2031.1	N/A 0.0 0.0	20.5970 [20.0000]	103.0%			
NEtFOSE	(630.0 / 59.0) 157831	(10.68 , 1.00) (0.01 , N/A , 0.0)	1109.4	N/A 0.0 0.0	20.3937 [20.0000]	102.0%			
HFPO-DA	(285.0 / 169.0) 1124771 (285.0 / 185.0) 3624912	(6.42 , 1.00) (0.00 , N/A , 0.1)	546.4 686.7	3.2228 100.0 100.0	10.2155 [10.0000]	102.2%			
ADONA	(377.0 / 85.0) 5935072 (377.0 / 251.0) 741902	(7.33 , 1.14) (N/A , 0.00 , 0.1)	609.2 556.1	0.1250 100.0 100.0	10.0637 [9.4270]	106.8%			
9Cl-Pf3ONS	(531.0 / 351.0) 15143709 (533.0 / 353.0) 4587015	(9.67 , 1.51) (N/A , 0.00 , 0.1)	738.4 806.5	0.3029 100.0 100.0	9.6671 [9.3325]	103.6%			
11Cl-PF3OUDS	(631.0 / 451.0) 8088618 (633.0 / 453.0) 2326239	(9.97 , 1.55) (N/A , 0.00 , -0.1)	1392.9 889.0	0.2876 100.0 100.0	10.3534 [9.4321]	109.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (5)
Acquired: 2023/01/05 - 19:11

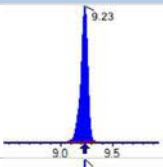
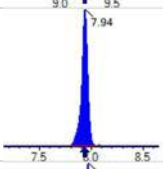
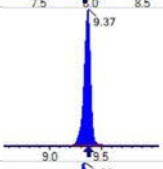
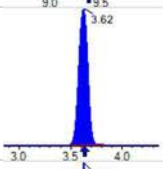
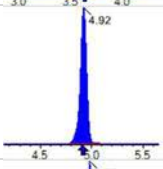
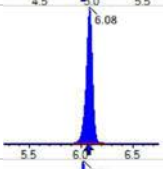
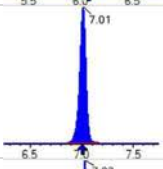
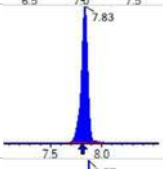
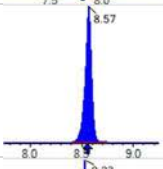
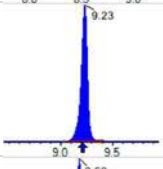
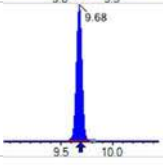
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 133797 (241.0 / 117.0) 208733	(4.44 , 0.90) (N/A , 0.00 , 0.0)	481.1 407.9	1.5601 100.0 100.0	19.2089 [20.0000]	96.0%			
5:3FTCA	(341.0 / 236.7) 918099 (341.0 / 217.0) 1705156	(6.72 , 1.11) (N/A , 0.00 , -0.1)	386.1 527.5	1.8573 100.0 100.0	18.3655 [20.0000]	91.8%			
7:3FTCA	(441.0 / 317.0) 1449974 (441.0 / 337.0) 1162894	(8.54 , 1.40) (N/A , 0.00 , -0.1)	490.1 588.3	0.8020 100.0 100.0	20.6386 [20.0000]	103.2%			
PFEESA	(315.0 / 135.0) 2774544 (315.0 / 83.0) 873419	(6.51 , 1.07) (N/A , 0.00 , 0.0)	601.4 573.4	0.3148 100.0 100.0	8.9908 [8.9246]	100.7%			
PFMPA	(229.0 / 85.0) 599045	(4.11 , 0.83) (N/A , 0.00 , 0.0)	942.9	N/A 0.0 0.0	10.0291 [10.0000]	100.3%			
PFMBA	(279.0 / 85.0) 1886931	(5.32 , 1.08) (N/A , 0.00 , 0.0)	668.8	N/A 0.0 0.0	10.4954 [10.0000]	105.0%			
NFDHA	(295.0 / 201.0) 1428955 (295.0 / 85.0) 1386202	(5.96 , 0.98) (N/A , 0.00 , 0.0)	538.9 546.8	0.9701 100.0 100.0	9.9591 [10.0000]	99.6%			
13C3_PFBA_IIS	(216.0 / 172.0) 176679	(3.62 , N/A) (N/A , 0.00 , N/A)	656.9	N/A	1.0453 [1.0000]	104.5% { 100.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 325760	(6.08 , N/A) (N/A , 0.00 , N/A)	615.5	N/A	1.0907 [1.0000]	109.1% { 100.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 360638	(7.84 , N/A) (N/A , 0.00 , N/A)	501.4	N/A	1.0901 [1.0000]	109.0% { 100.0% }			
13C5_PFNA_IIS	(468.0 / 423.0) 299054	(8.57 , N/A) (N/A , 0.00 , N/A)	481.5	N/A	1.0726 [1.0000]	107.3% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (5)
Acquired: 2023/01/05 - 19:11

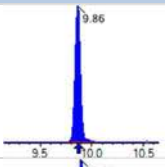
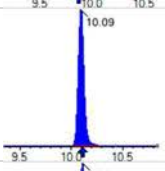
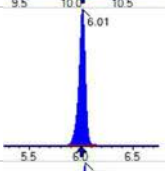
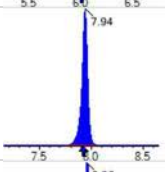
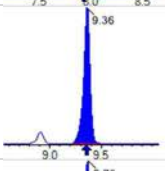
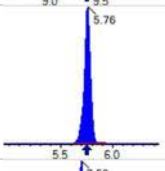
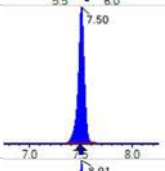
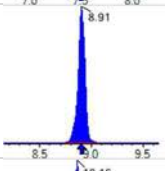
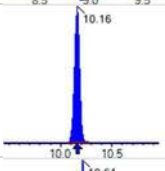
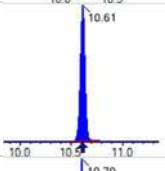
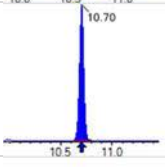
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 391332	(9.23 , N/A) (N/A , 0.00 , N/A)	657.0	N/A	1.2515 [1.0000]	125.1% { 100.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 571590	(7.94 , N/A) (N/A , 0.00 , N/A)	873.8	N/A	0.9733 [1.0000]	97.3% { 100.0% }			
13C4_PFOS_IIS	(503.0 / 79.9) 646503	(9.37 , N/A) (N/A , 0.00 , N/A)	615.1	N/A	1.0952 [1.0000]	109.5% { 100.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1431548	(3.62 , N/A) (N/A , 0.00 , N/A)	683.9	N/A	8.1346 [8.0000]	101.7% { 100.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1009568	(4.92 , N/A) (N/A , 0.00 , N/A)	684.1	N/A	3.8308 [4.0000]	95.8% { 100.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 654103	(6.08 , N/A) (N/A , 0.00 , N/A)	418.5	N/A	1.9180 [2.0000]	95.9% { 100.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 556107	(7.01 , N/A) (N/A , 0.00 , N/A)	487.7	N/A	1.8209 [2.0000]	91.0% { 100.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 658711	(7.83 , N/A) (N/A , 0.00 , N/A)	695.9	N/A	1.8436 [2.0000]	92.2% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 294061	(8.57 , N/A) (N/A , 0.00 , N/A)	454.3	N/A	0.9904 [1.0000]	99.0% { 100.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 435527	(9.23 , N/A) (N/A , 0.00 , N/A)	349.0	N/A	0.9486 [1.0000]	94.9% { 100.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 489088	(9.68 , N/A) (N/A , 0.00 , N/A)	333.9	N/A	0.8053 [1.0000]	80.5% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (5)
Acquired: 2023/01/05 - 19:11

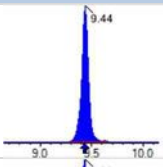
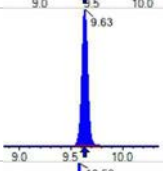
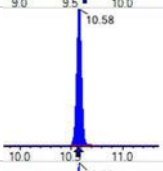
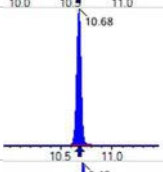
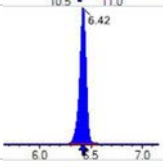
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 526021	(9.86 , N/A) (N/A , 0.00 , N/A)	579.9	N/A	0.8551 [1.0000]	85.5% { 100.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 341226	(10.09 , N/A) (N/A , 0.00 , N/A)	761.9	N/A	0.7752 [1.0000]	77.5% { 100.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1660318	(6.01 , N/A) (N/A , 0.00 , N/A)	586.2	N/A	2.0871 [2.0000]	104.4% { 100.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1035094	(7.94 , N/A) (N/A , 0.00 , N/A)	675.0	N/A	2.1881 [2.0000]	109.4% { 100.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1481097	(9.36 , N/A) (N/A , 0.00 , N/A)	205.8	N/A	1.8656 [2.0000]	93.3% { 100.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 564026	(5.76 , N/A) (N/A , 0.00 , N/A)	595.0	N/A	4.1836 [4.0000]	104.6% { 100.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 817115	(7.50 , N/A) (N/A , 0.00 , N/A)	647.6	N/A	4.3459 [4.0000]	108.6% { 100.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 800682	(8.91 , N/A) (N/A , 0.00 , N/A)	568.8	N/A	4.1720 [4.0000]	104.3% { 100.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1812302	(10.16 , N/A) (N/A , 0.00 , N/A)	1549.2	N/A	2.0483 [2.0000]	102.4% { 100.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 345059	(10.61 , N/A) (N/A , 0.00 , N/A)	812.2	N/A	1.7650 [2.0000]	88.2% { 100.0% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 338934	(10.70 , N/A) (N/A , 0.00 , N/A)	989.1	N/A	1.9057 [2.0000]	95.3% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (5)
Acquired: 2023/01/05 - 19:11

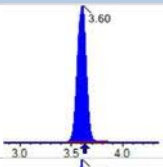
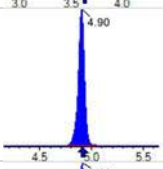
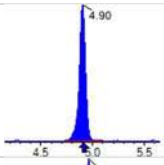
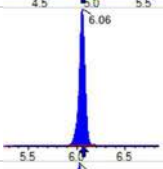
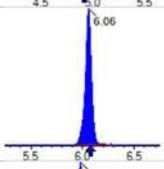
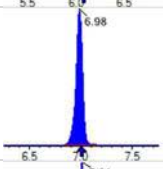
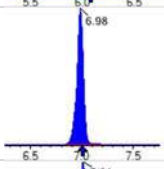
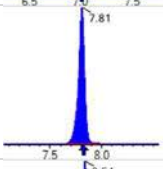
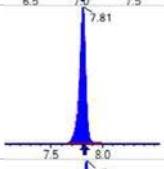
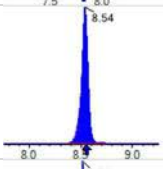
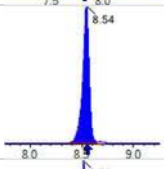
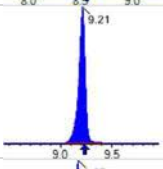
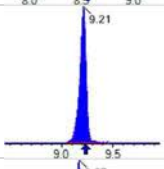
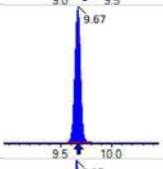
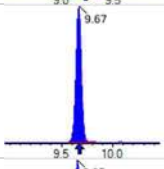
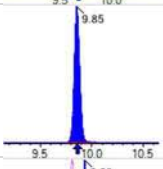
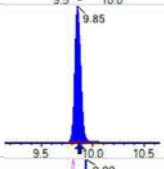
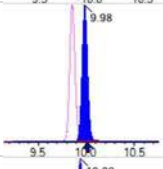
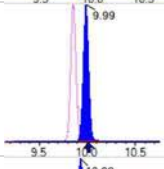
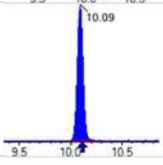
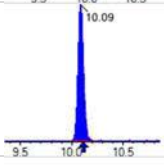
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 977978	(9.44 , N/A) (N/A , 0.00 , N/A)	358.7	N/A	3.5504 [4.0000]	88.8% { 100.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 945908	(9.63 , N/A) (N/A , 0.00 , N/A)	151.2	N/A	3.9581 [4.0000]	99.0% { 100.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 587661	(10.58 , N/A) (N/A , 0.00 , N/A)	858.5	N/A	18.6584 [20.0000]	93.3% { 100.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 292353	(10.68 , N/A) (N/A , 0.00 , N/A)	1122.6	N/A	20.3624 [20.0000]	101.8% { 100.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1459109	(6.42 , N/A) (N/A , 0.00 , N/A)	771.2	N/A	7.7656 [8.0000]	97.1% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (6)
Acquired: 2023/01/05 - 19:24

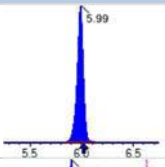
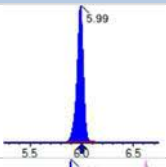
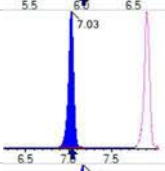
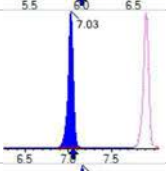
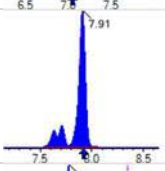
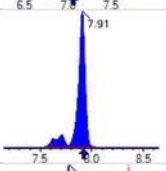
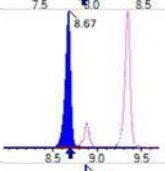
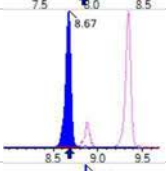
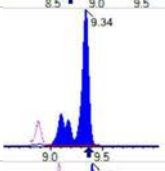
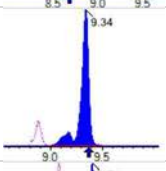
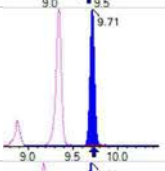
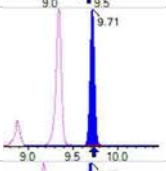
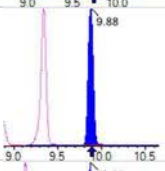
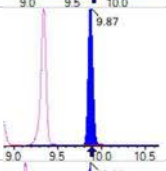
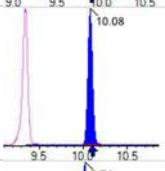
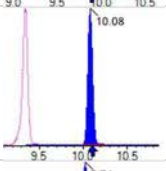
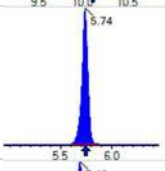
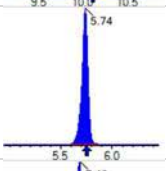
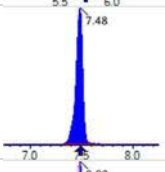
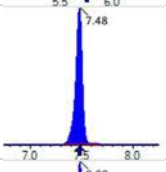
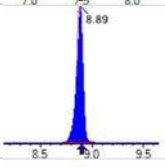
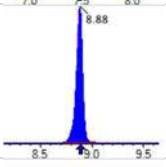
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 6548367	(3.60 , 1.00) (0.00 , N/A , 0.0)	561.8	N/A 0.0 0.0	42.5010 [40.0000]	106.3%			
PFPeA	(263.0 / 219.0) 4851416 (263.0 / 69.0) 56951	(4.90 , 1.00) (0.00 , N/A , 0.0)	730.4 423.6	0.0117 96.7 96.7	21.1683 [20.0000]	105.8%			
PFHxA	(313.0 / 269.0) 2959495 (313.0 / 119.0) 271360	(6.06 , 1.00) (0.00 , N/A , 0.0)	639.4 518.2	0.0917 91.8 91.8	9.9438 [10.0000]	99.4%			
PFHpA	(363.0 / 319.0) 2735741 (363.0 / 169.0) 794410	(6.98 , 1.00) (0.00 , N/A , 0.1)	589.6 504.6	0.2904 97.4 97.4	10.4892 [10.0000]	104.9%			
PFOA	(413.0 / 369.0) 3419398 (413.0 / 169.0) 1145577	(7.81 , 1.00) (0.00 , N/A , 0.0)	541.6 605.1	0.3350 101.1 101.1	10.0781 [10.0000]	100.8%			
PFNA	(463.0 / 419.0) 2607796 (463.0 / 169.0) 575907	(8.54 , 1.00) (0.00 , N/A , -0.2)	587.9 456.7	0.2208 96.2 96.2	10.1851 [10.0000]	101.9%			
PFDA	(513.0 / 469.0) 3895147 (513.0 / 169.0) 430166	(9.21 , 1.00) (0.00 , N/A , 0.0)	524.9 471.2	0.1104 115.6 115.6	9.7159 [10.0000]	97.2%			
PFUnA	(563.0 / 519.0) 4836400 (563.0 / 169.0) 459455	(9.67 , 1.00) (0.00 , N/A , 0.0)	753.0 381.2	0.0950 95.0 95.0	10.8460 [10.0000]	108.5%			
PFDoA	(613.0 / 569.0) 4714780 (613.0 / 169.0) 513575	(9.85 , 1.00) (0.00 , N/A , 0.2)	881.9 535.4	0.1089 88.8 88.8	12.4812 [10.0000]	124.8%			
PFTrDA	(663.0 / 619.0) 3923879 (663.0 / 169.0) 773225	(9.98 , 1.01) (N/A , -0.01 , -0.1)	968.0 823.2	0.1971 100.9 100.9	10.9370 [10.0000]	109.4%			
PFTeDA	(713.0 / 669.0) 3292055 (713.0 / 169.0) 723593	(10.09 , 1.00) (0.00 , N/A , 0.3)	1245.9 503.0	0.2198 115.5 115.5	10.1162 [10.0000]	101.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (6)
Acquired: 2023/01/05 - 19:24

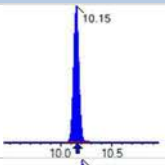
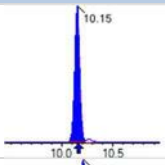
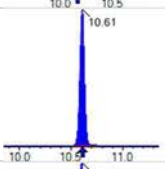
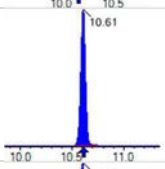
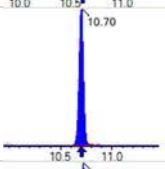
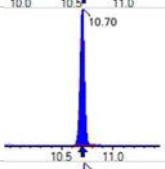
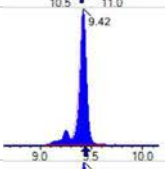
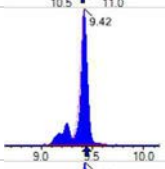
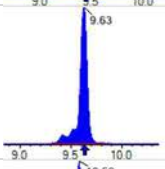
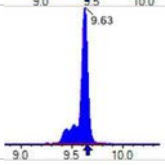
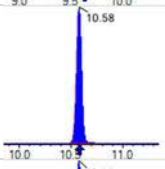
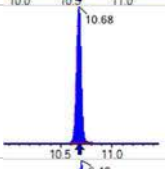
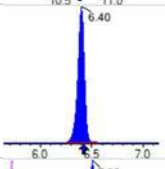
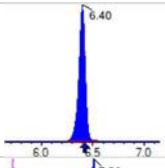
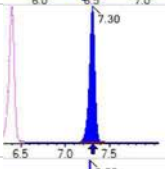
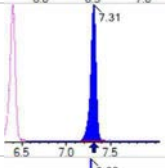
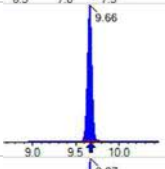
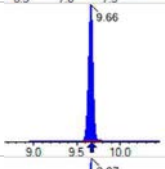
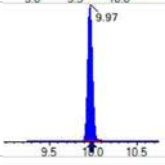
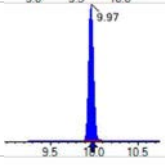
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 4780574 (299.0 / 99.0) 2990031	(5.99 , 1.00) (0.00 , N/A , 0.0)	583.1 525.3	0.6255 96.0 96.0	9.2212 [8.8473]	104.2%			
PFPeS	(349.0 / 80.0) 8397696 (349.0 / 99.0) 2992537	(7.03 , 0.89) (N/A , -0.03 , 0.0)	657.8 669.3	0.3564 96.9 96.9	10.2384 [9.3838]	109.1%			
PFHxS	(399.0 / 80.0) 7161507 (399.0 / 99.0) 2393707	(7.91 , 1.00) (0.00 , N/A , 0.2)	629.2 932.8	0.3342 96.9 96.9	9.4726 [9.1098]	104.0%			
PFHpS	(449.0 / 80.0) 6736647 (449.0 / 99.0) 1913598	(8.67 , 0.93) (N/A , -0.03 , 0.1)	555.7 620.2	0.2841 101.6 101.6	10.3885 [9.5141]	109.2%			
PFOS	(499.0 / 80.0) 7919684 (499.0 / 99.0) 1804879	(9.34 , 1.00) (0.00 , N/A , 0.0)	320.4 764.0	0.2279 101.4 101.4	10.0197 [9.2749]	108.0%			
PFNS	(549.0 / 80.0) 9463732 (549.0 / 99.0) 2305528	(9.71 , 1.04) (N/A , -0.01 , 0.0)	940.7 966.3	0.2436 96.4 96.4	10.8257 [9.5989]	112.8%			
PFDS	(599.0 / 80.0) 9971874 (599.0 / 99.0) 2347036	(9.88 , 1.06) (N/A , -0.01 , 0.1)	1154.3 920.9	0.2354 101.6 101.6	10.4993 [9.6311]	109.0%			
PFDoS	(699.0 / 80.0) 4179486 (699.0 / 99.0) 893239	(10.08 , 1.08) (N/A , -0.01 , 0.0)	1771.2 1021.6	0.2137 92.0 92.0	10.4531 [9.6956]	107.8%			
4:2FTS	(327.0 / 307.0) 19397524 (327.0 / 81.0) 10563850	(5.74 , 1.00) (0.00 , N/A , -0.1)	674.8 651.6	0.5446 99.2 99.2	40.2099 [37.3811]	107.6%			
6:2FTS	(427.0 / 407.0) 10782724 (427.0 / 81.0) 8281590	(7.48 , 1.00) (0.00 , N/A , 0.2)	634.4 671.0	0.7680 105.8 105.8	36.9349 [37.9617]	97.3%			
8:2FTS	(527.0 / 507.0) 11387747 (527.0 / 81.0) 7594913	(8.89 , 1.00) (0.01 , N/A , 0.3)	609.5 702.0	0.6669 100.0 100.0	40.0279 [38.3315]	104.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (6)
Acquired: 2023/01/05 - 19:24

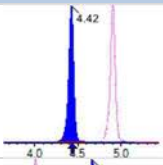
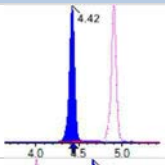
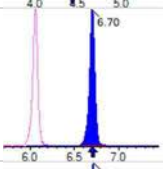
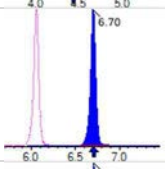
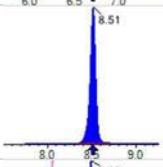
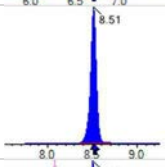
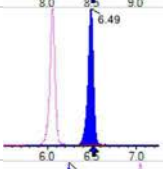
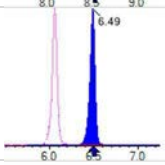
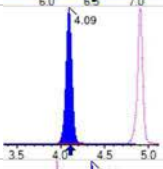
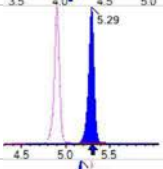
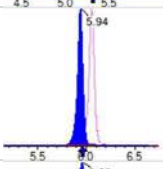
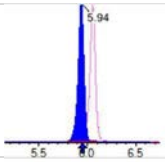
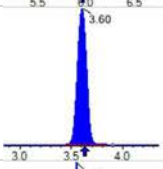
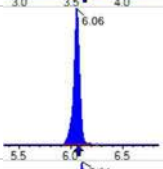
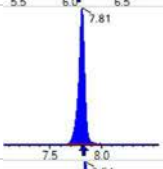
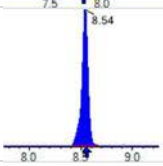
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 8912912 (498.0 / 478.0) 185087	(10.15 , 1.00) (0.00 , N/A , 0.0)	1685.6 502.9	0.0208 87.6 87.6	10.5314 [10.0000]	105.3%			
NMeFOSA	(512.0 / 219.0) 6915450 (512.0 / 169.0) 4478626	(10.61 , 1.00) (0.00 , N/A , 0.1)	882.9 874.4	0.6476 90.3 90.3	42.7346 [40.0000]	106.8%			
NEtFOSA	(526.0 / 219.0) 6389838 (526.0 / 169.0) 6837407	(10.70 , 1.00) (0.00 , N/A , 0.0)	898.1 957.1	1.0700 99.4 99.4	41.2847 [40.0000]	103.2%			
NMeFOSAA	(570.0 / 419.0) 2220553 (570.0 / 483.0) 1115853	(9.42 , 1.00) (0.01 , N/A , 0.0)	485.1 445.5	0.5025 105.3 105.3	9.8052 [10.0000]	98.1%			
NEtFOSAA	(584.0 / 419.0) 1857469 (584.0 / 526.0) 1190689	(9.63 , 1.00) (0.01 , N/A , 0.0)	755.0 557.0	0.6410 100.8 100.8	10.7050 [10.0000]	107.1%			
NMeFOSE	(616.0 / 59.0) 1342344	(10.58 , 1.00) (0.01 , N/A , 0.0)	1265.1	N/A 0.0 0.0	39.6385 [40.0000]	99.1%			
NEtFOSE	(630.0 / 59.0) 267911	(10.68 , 1.00) (0.01 , N/A , 0.0)	1027.4	N/A 0.0 0.0	43.9729 [40.0000]	109.9%			
HFPO-DA	(285.0 / 169.0) 2121103 (285.0 / 185.0) 6879102	(6.40 , 1.00) (0.00 , N/A , 0.1)	581.1 642.5	3.2432 100.6 100.6	20.3233 [20.0000]	101.6%			
ADONA	(377.0 / 85.0) 11264935 (377.0 / 251.0) 1411088	(7.30 , 1.14) (N/A , -0.03 , -0.2)	637.1 663.2	0.1253 100.2 100.2	20.1511 [18.8540]	106.9%			
9Cl-Pf3ONS	(531.0 / 351.0) 28966206 (533.0 / 353.0) 8948126	(9.66 , 1.51) (N/A , -0.01 , -0.1)	978.9 421.4	0.3089 102.0 102.0	20.5229 [18.6651]	110.0%			
11Cl-PF3OUDS	(631.0 / 451.0) 14176767 (633.0 / 453.0) 4536162	(9.97 , 1.56) (N/A , -0.01 , 0.0)	1002.5 1335.5	0.3200 111.3 111.3	19.1438 [18.8642]	101.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (6)
Acquired: 2023/01/05 - 19:24

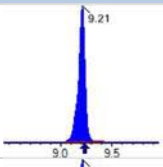
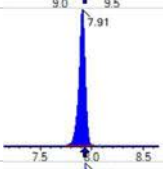
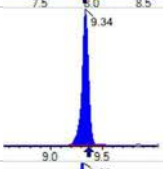
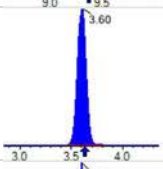
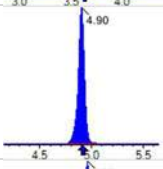
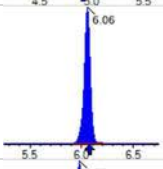
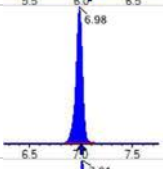
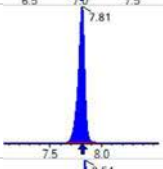
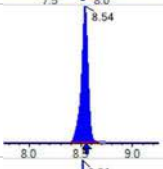
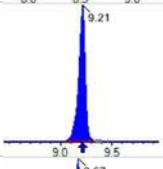
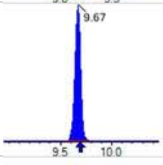
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 275298 (241.0 / 117.0) 408201	(4.42 , 0.90) (N/A , -0.02 , 0.2)	594.4 458.9	1.4828 95.0 95.0	40.9872 [40.0000]	102.5%			
5:3FTCA	(341.0 / 236.7) 1981222 (341.0 / 217.0) 3473008	(6.70 , 1.11) (N/A , -0.02 , 0.0)	680.1 579.1	1.7530 94.4 94.4	42.7753 [40.0000]	106.9%			
7:3FTCA	(441.0 / 317.0) 2570768 (441.0 / 337.0) 2175916	(8.51 , 1.41) (N/A , -0.03 , 0.0)	558.1 534.2	0.8464 105.5 105.5	39.4939 [40.0000]	98.7%			
PFEESA	(315.0 / 135.0) 5360108 (315.0 / 83.0) 1726347	(6.49 , 1.07) (N/A , -0.02 , 0.0)	575.7 675.5	0.3221 102.3 102.3	18.7467 [17.8492]	105.0%			
PFMPA	(229.0 / 85.0) 1137244	(4.09 , 0.83) (N/A , -0.02 , 0.0)	861.7	N/A 0.0 0.0	19.7445 [20.0000]	98.7%			
PFMBA	(279.0 / 85.0) 3220612	(5.29 , 1.08) (N/A , -0.02 , 0.0)	601.7	N/A 0.0 0.0	18.5767 [20.0000]	92.9%			
NFDHA	(295.0 / 201.0) 2837394 (295.0 / 85.0) 2586406	(5.94 , 0.98) (N/A , -0.02 , 0.1)	595.6 568.8	0.9115 94.0 94.0	21.3436 [20.0000]	106.7%			
13C3_PFBA_IIS	(216.0 / 172.0) 174265	(3.60 , N/A) (N/A , -0.02 , N/A)	565.6	N/A	1.0310 [1.0000]	103.1% { 98.6% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 300676	(6.06 , N/A) (N/A , -0.03 , N/A)	581.0	N/A	1.0067 [1.0000]	100.7% { 92.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 335741	(7.81 , N/A) (N/A , -0.03 , N/A)	452.2	N/A	1.0149 [1.0000]	101.5% { 93.1% }			
13C5_PFNA_IIS	(468.0 / 423.0) 272416	(8.54 , N/A) (N/A , -0.03 , N/A)	613.4	N/A	0.9771 [1.0000]	97.7% { 91.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (6)
Acquired: 2023/01/05 - 19:24

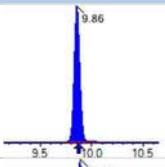
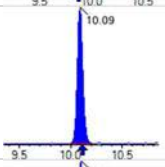
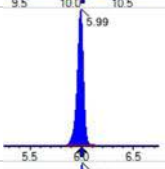
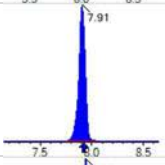
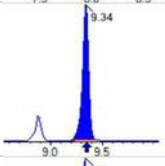
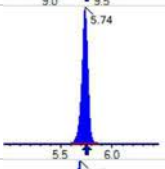
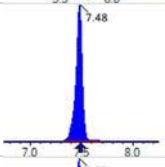
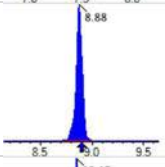
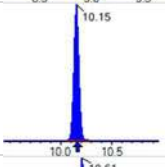
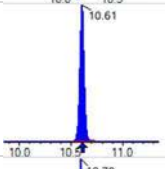
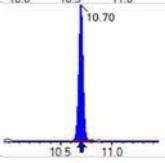
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 343300	(9.21 , N/A) (N/A , -0.02 , N/A)	404.2	N/A	1.0979 [1.0000]	109.8% { 87.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 569832	(7.91 , N/A) (N/A , -0.03 , N/A)	665.6	N/A	0.9703 [1.0000]	97.0% { 99.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 526451	(9.34 , N/A) (N/A , -0.03 , N/A)	407.1	N/A	0.8918 [1.0000]	89.2% { 81.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1343207	(3.60 , N/A) (N/A , -0.02 , N/A)	701.0	N/A	7.7383 [8.0000]	96.7% { 93.8% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 973525	(4.90 , N/A) (N/A , -0.02 , N/A)	635.4	N/A	4.0022 [4.0000]	100.1% { 96.4% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 606039	(6.06 , N/A) (N/A , -0.03 , N/A)	611.2	N/A	1.9253 [2.0000]	96.3% { 92.7% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 509930	(6.98 , N/A) (N/A , -0.03 , N/A)	668.0	N/A	1.8090 [2.0000]	90.5% { 91.7% }			
13C8_PFOA_EIS	(421.0 / 376.0) 643074	(7.81 , N/A) (N/A , -0.03 , N/A)	644.2	N/A	1.9333 [2.0000]	96.7% { 97.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 262110	(8.54 , N/A) (N/A , -0.03 , N/A)	391.3	N/A	0.9691 [1.0000]	96.9% { 89.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 387853	(9.21 , N/A) (N/A , -0.02 , N/A)	388.4	N/A	0.9629 [1.0000]	96.3% { 89.1% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 497500	(9.67 , N/A) (N/A , -0.01 , N/A)	478.7	N/A	0.9337 [1.0000]	93.4% { 101.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (6)
Acquired: 2023/01/05 - 19:24

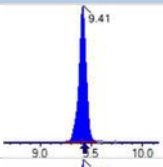
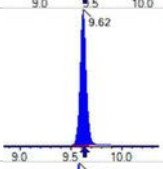
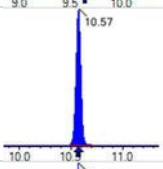
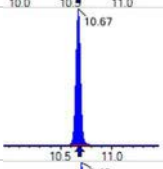
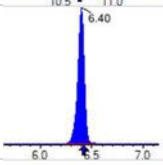
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 414073	(9.86 , N/A) (N/A , -0.01 , N/A)	550.1	N/A	0.7673 [1.0000]	76.7% { 78.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 326640	(10.09 , N/A) (N/A , -0.01 , N/A)	566.8	N/A	0.8459 [1.0000]	84.6% { 95.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1638505	(5.99 , N/A) (N/A , -0.02 , N/A)	672.0	N/A	2.0661 [2.0000]	103.3% { 98.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 898258	(7.91 , N/A) (N/A , -0.03 , N/A)	740.8	N/A	1.9047 [2.0000]	95.2% { 86.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1346018	(9.34 , N/A) (N/A , -0.02 , N/A)	158.3	N/A	2.0821 [2.0000]	104.1% { 90.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 558161	(5.74 , N/A) (N/A , -0.02 , N/A)	583.7	N/A	4.1528 [4.0000]	103.8% { 99.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 726607	(7.48 , N/A) (N/A , -0.03 , N/A)	529.8	N/A	3.8765 [4.0000]	96.9% { 88.9% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 752343	(8.88 , N/A) (N/A , -0.03 , N/A)	500.3	N/A	3.9322 [4.0000]	98.3% { 94.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1527571	(10.15 , N/A) (N/A , -0.01 , N/A)	925.0	N/A	2.1202 [2.0000]	106.0% { 84.3% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 352827	(10.61 , N/A) (N/A , -0.01 , N/A)	597.3	N/A	2.2162 [2.0000]	110.8% { 102.3% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 308966	(10.70 , N/A) (N/A , 0.00 , N/A)	731.9	N/A	2.1333 [2.0000]	106.7% { 91.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (6)
Acquired: 2023/01/05 - 19:24

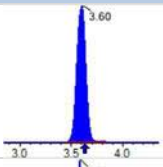
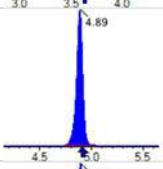
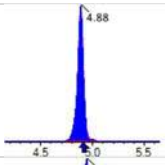
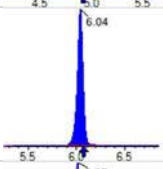
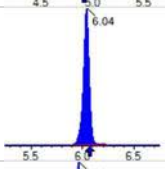
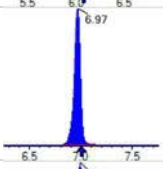
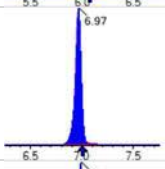
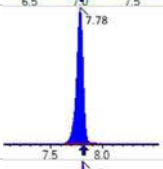
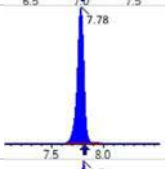
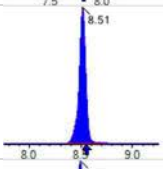
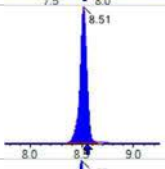
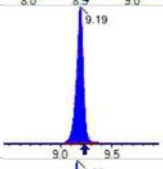
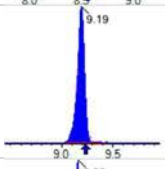
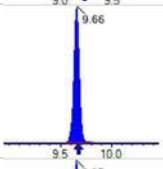
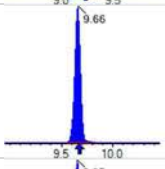
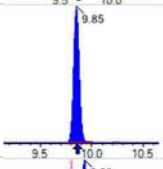
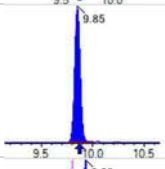
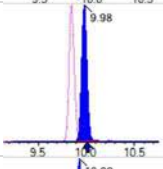
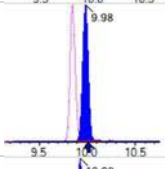
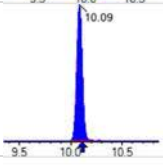
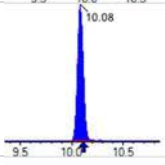
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 972469	(9.41 , N/A) (N/A , -0.02 , N/A)	459.0	N/A	4.3354 [4.0000]	108.4% { 99.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 774430	(9.62 , N/A) (N/A , -0.01 , N/A)	139.2	N/A	3.9796 [4.0000]	99.5% { 81.9% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 544092	(10.57 , N/A) (N/A , -0.01 , N/A)	1087.1	N/A	21.2144 [20.0000]	106.1% { 92.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 230154	(10.67 , N/A) (N/A , 0.00 , N/A)	1431.4	N/A	19.6857 [20.0000]	98.4% { 78.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1383084	(6.40 , N/A) (N/A , -0.02 , N/A)	519.7	N/A	7.9751 [8.0000]	99.7% { 94.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (7)
Acquired: 2023/01/05 - 19:37

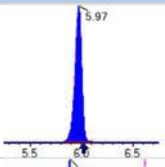
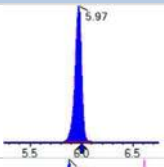
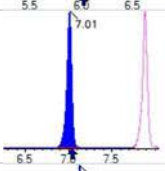
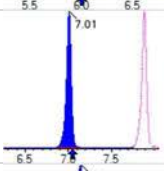
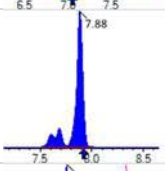
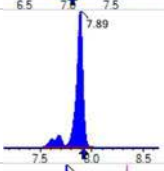
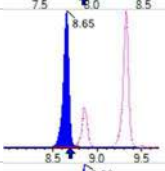
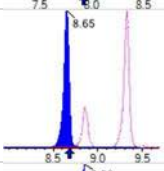
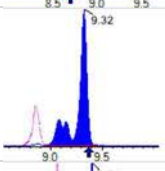
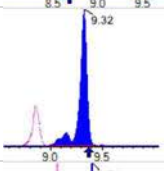
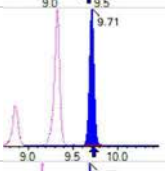
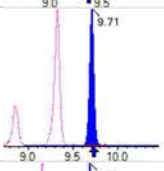
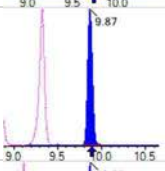
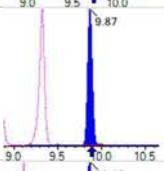
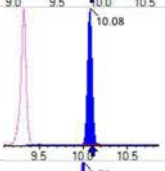
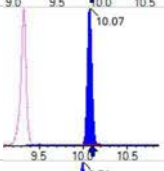
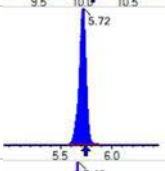
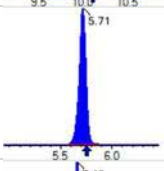
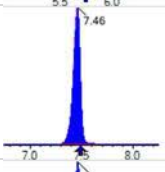
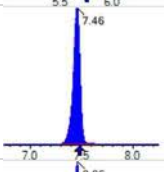
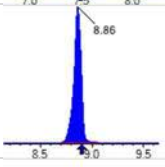
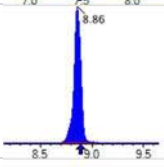
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 11966936	(3.60 , 1.00) (0.00 , N/A , 0.0)	645.5	N/A 0.0 0.0	84.5080 [80.0000]	105.6%			
PFPeA	(263.0 / 219.0) 8507077 (263.0 / 69.0) 100981	(4.89 , 1.00) (0.00 , N/A , 0.1)	645.9 417.8	0.0119 97.8 97.8	41.7508 [40.0000]	104.4%			
PFHxA	(313.0 / 269.0) 6082083 (313.0 / 119.0) 628133	(6.04 , 1.00) (0.00 , N/A , 0.0)	555.9 477.2	0.1033 103.5 103.5	20.8617 [20.0000]	104.3%			
PFHpA	(363.0 / 319.0) 5987153 (363.0 / 169.0) 1706408	(6.97 , 1.00) (0.01 , N/A , 0.1)	602.1 561.4	0.2850 95.6 95.6	22.0875 [20.0000]	110.4%			
PFOA	(413.0 / 369.0) 6691289 (413.0 / 169.0) 2112994	(7.78 , 1.00) (0.00 , N/A , 0.2)	633.5 573.9	0.3158 95.3 95.3	21.2458 [20.0000]	106.2%			
PFNA	(463.0 / 419.0) 5591666 (463.0 / 169.0) 1064723	(8.51 , 1.00) (0.00 , N/A , 0.0)	645.9 519.5	0.1904 83.0 83.0	23.1796 [20.0000]	115.9%			
PFDA	(513.0 / 469.0) 7161672 (513.0 / 169.0) 717761	(9.19 , 1.00) (0.00 , N/A , 0.0)	485.8 448.6	0.1002 104.9 104.9	20.4918 [20.0000]	102.5%			
PFUnA	(563.0 / 519.0) 6859636 (563.0 / 169.0) 663758	(9.66 , 1.00) (0.00 , N/A , 0.0)	843.5 772.0	0.0968 96.8 96.8	17.8806 [20.0000]	89.4%			
PFDoA	(613.0 / 569.0) 9009750 (613.0 / 169.0) 1131945	(9.85 , 1.00) (0.00 , N/A , 0.0)	1137.1 420.5	0.1256 102.4 102.4	21.0336 [20.0000]	105.2%			
PFTrDA	(663.0 / 619.0) 8338432 (663.0 / 169.0) 1871986	(9.98 , 1.01) (N/A , -0.01 , -0.1)	1259.7 661.7	0.2245 114.9 114.9	20.4963 [20.0000]	102.5%			
PFTeDA	(713.0 / 669.0) 7122380 (713.0 / 169.0) 1246726	(10.09 , 1.00) (0.00 , N/A , 0.1)	1160.2 728.7	0.1750 92.0 92.0	23.9563 [20.0000]	119.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (7)
Acquired: 2023/01/05 - 19:37

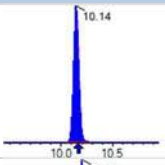
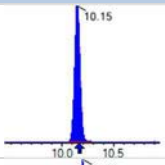
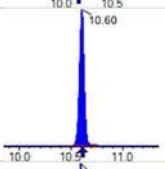
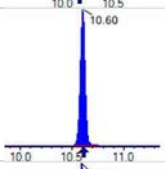
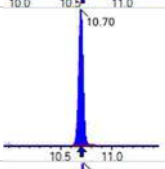
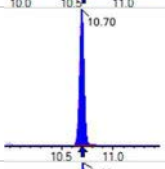
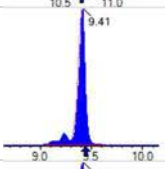
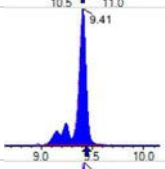
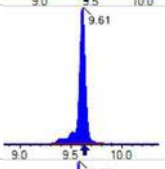
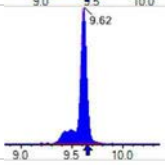
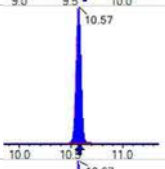
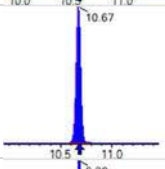
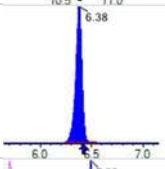
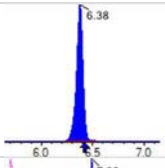
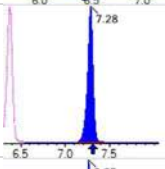
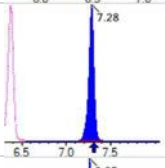
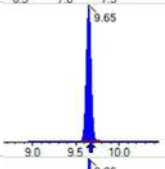
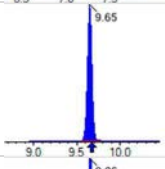
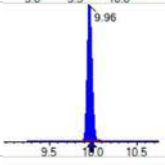
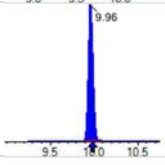
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 8595727 (299.0 / 99.0) 5875765	(5.97 , 1.00) (0.00 , N/A , 0.0)	581.2 630.8	0.6836 104.9 104.9	19.0518 [17.6947]	107.7%			
PFPeS	(349.0 / 80.0) 17085319 (349.0 / 99.0) 6296051	(7.01 , 0.89) (N/A , -0.05 , 0.1)	675.6 914.0	0.3685 100.2 100.2	20.4233 [18.7676]	108.8%			
PFHxS	(399.0 / 80.0) 15171700 (399.0 / 99.0) 5078835	(7.88 , 1.00) (0.00 , N/A , -0.1)	759.6 914.4	0.3348 97.1 97.1	19.6758 [18.2197]	108.0%			
PFHpS	(449.0 / 80.0) 13086140 (449.0 / 99.0) 3956217	(8.65 , 0.93) (N/A , -0.05 , 0.0)	632.8 670.9	0.3023 108.1 108.1	20.2413 [19.0281]	106.4%			
PFOS	(499.0 / 80.0) 15175545 (499.0 / 99.0) 3474155	(9.32 , 1.00) (0.00 , N/A , 0.0)	352.0 760.9	0.2289 101.9 101.9	19.3006 [18.5499]	104.0%			
PFNS	(549.0 / 80.0) 15835346 (549.0 / 99.0) 4444215	(9.71 , 1.04) (N/A , -0.02 , 0.0)	1002.6 792.2	0.2807 111.1 111.1	18.1693 [19.1977]	94.6%			
PFDS	(599.0 / 80.0) 19011183 (599.0 / 99.0) 4626919	(9.87 , 1.06) (N/A , -0.02 , 0.1)	1046.0 965.8	0.2434 105.0 105.0	20.0775 [19.2621]	104.2%			
PFDoS	(699.0 / 80.0) 7677870 (699.0 / 99.0) 1664122	(10.08 , 1.08) (N/A , -0.01 , 0.2)	1091.5 543.4	0.2167 93.3 93.3	19.2611 [19.3913]	99.3%			
4:2FTS	(327.0 / 307.0) 30188423 (327.0 / 81.0) 18584681	(5.72 , 1.00) (0.00 , N/A , 0.1)	563.6 606.2	0.6156 112.1 112.1	77.4660 [74.7622]	103.6%			
6:2FTS	(427.0 / 407.0) 20495996 (427.0 / 81.0) 15963079	(7.46 , 1.00) (0.00 , N/A , 0.1)	577.7 625.1	0.7788 107.2 107.2	79.2326 [75.9234]	104.4%			
8:2FTS	(527.0 / 507.0) 19591577 (527.0 / 81.0) 13125909	(8.86 , 1.00) (0.00 , N/A , 0.2)	463.4 563.3	0.6700 100.4 100.4	67.8804 [76.6631]	88.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (7)
Acquired: 2023/01/05 - 19:37

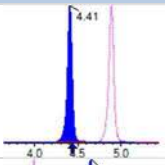
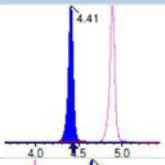
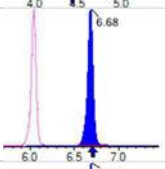
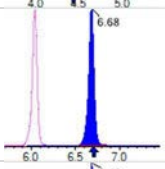
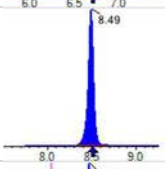
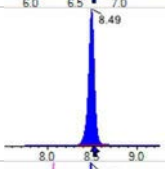
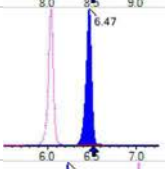
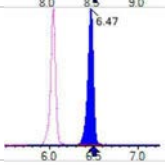
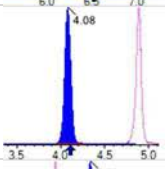
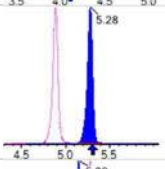
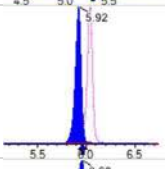
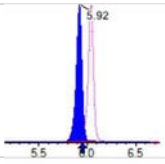
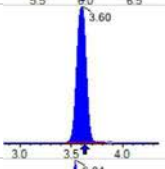
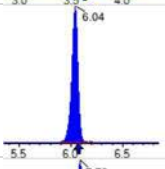
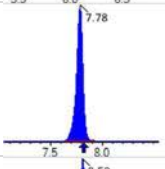
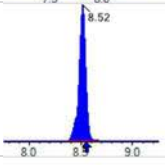
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 15077879 (498.0 / 478.0) 362345	(10.14 , 1.00) (-0.01 , N/A , -0.1)	1101.9 522.9	0.0240 101.4 101.4	22.0714 [20.0000]	110.4%			
NMeFOSA	(512.0 / 219.0) 12111511 (512.0 / 169.0) 8119908	(10.60 , 1.00) (0.00 , N/A , 0.1)	782.5 1213.0	0.6704 93.5 93.5	78.7126 [80.0000]	98.4%			
NEtFOSA	(526.0 / 219.0) 12066919 (526.0 / 169.0) 13071678	(10.70 , 1.00) (0.00 , N/A , 0.0)	1482.9 1540.5	1.0833 100.6 100.6	82.3881 [80.0000]	103.0%			
NMeFOSAA	(570.0 / 419.0) 4284957 (570.0 / 483.0) 2175961	(9.41 , 1.00) (0.01 , N/A , 0.3)	626.7 445.8	0.5078 106.4 106.4	19.3344 [20.0000]	96.7%			
NEtFOSAA	(584.0 / 419.0) 3593064 (584.0 / 526.0) 2213610	(9.61 , 1.00) (0.00 , N/A , -0.2)	784.3 605.3	0.6161 96.9 96.9	22.3149 [20.0000]	111.6%			
NMeFOSE	(616.0 / 59.0) 2798227	(10.57 , 1.00) (0.01 , N/A , 0.0)	1796.9	N/A 0.0 0.0	87.8040 [80.0000]	109.8%			
NEtFOSE	(630.0 / 59.0) 563467	(10.67 , 1.00) (0.01 , N/A , 0.0)	1784.1	N/A 0.0 0.0	89.0235 [80.0000]	111.3%			
HFPO-DA	(285.0 / 169.0) 4104552 (285.0 / 185.0) 13239062	(6.38 , 1.00) (0.00 , N/A , 0.1)	594.4 625.4	3.2255 100.1 100.1	42.0286 [40.0000]	105.1%			
ADONA	(377.0 / 85.0) 21249310 (377.0 / 251.0) 2862414	(7.28 , 1.14) (N/A , -0.05 , 0.0)	597.7 742.6	0.1347 107.8 107.8	40.6219 [37.7080]	107.7%			
9Cl-Pf3ONS	(531.0 / 351.0) 46387914 (533.0 / 353.0) 16821042	(9.65 , 1.51) (N/A , -0.02 , 0.0)	821.0 989.2	0.3626 119.7 119.7	38.3952 [37.3302]	102.9%			
11Cl-PF3OUDS	(631.0 / 451.0) 27561396 (633.0 / 453.0) 8810900	(9.96 , 1.56) (N/A , -0.01 , -0.1)	1029.8 878.6	0.3197 111.2 111.2	39.7738 [37.7283]	105.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (7)
Acquired: 2023/01/05 - 19:37

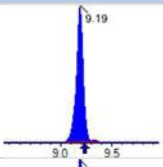
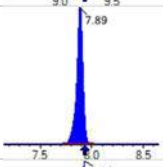
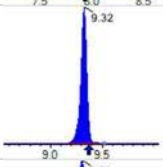
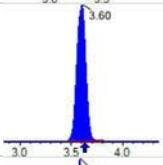
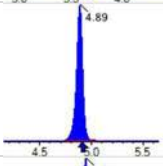
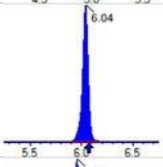
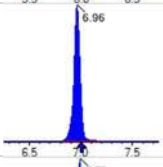
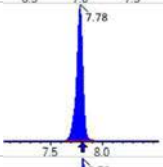
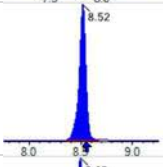
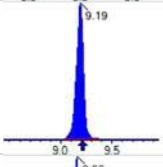
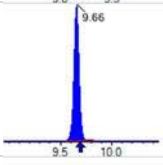
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 539476 (241.0 / 117.0) 825050	(4.41 , 0.90) (N/A , -0.04 , 0.0)	634.4 651.5	1.5294 98.0 98.0	90.3407 [80.0000]	112.9%			
5:3FTCA	(341.0 / 236.7) 3860082 (341.0 / 217.0) 6828493	(6.68 , 1.11) (N/A , -0.04 , 0.0)	482.6 601.6	1.7690 95.2 95.2	85.0785 [80.0000]	106.3%			
7:3FTCA	(441.0 / 317.0) 5350568 (441.0 / 337.0) 4204145	(8.49 , 1.41) (N/A , -0.05 , 0.0)	569.9 550.4	0.7857 98.0 98.0	83.9131 [80.0000]	104.9%			
PFEESA	(315.0 / 135.0) 10014713 (315.0 / 83.0) 2973368	(6.47 , 1.07) (N/A , -0.05 , 0.0)	659.1 619.0	0.2969 94.3 94.3	35.7564 [35.6984]	100.2%			
PFMPA	(229.0 / 85.0) 2200433	(4.08 , 0.83) (N/A , -0.03 , 0.0)	959.0	N/A 0.0 0.0	42.9702 [40.0000]	107.4%			
PFMBA	(279.0 / 85.0) 7168455	(5.28 , 1.08) (N/A , -0.04 , 0.0)	794.6	N/A 0.0 0.0	46.5074 [40.0000]	116.3%			
NFDHA	(295.0 / 201.0) 5199194 (295.0 / 85.0) 5080907	(5.92 , 0.98) (N/A , -0.04 , 0.1)	586.4 542.2	0.9772 100.7 100.7	39.9252 [40.0000]	99.8%			
13C3_PFBA_IIS	(216.0 / 172.0) 152087	(3.60 , N/A) (N/A , -0.02 , N/A)	645.5	N/A	0.8998 [1.0000]	90.0% { 86.1% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 294355	(6.04 , N/A) (N/A , -0.04 , N/A)	476.5	N/A	0.9855 [1.0000]	98.6% { 90.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 299808	(7.78 , N/A) (N/A , -0.05 , N/A)	528.8	N/A	0.9062 [1.0000]	90.6% { 83.1% }			
13C5_PFNA_IIS	(468.0 / 423.0) 259819	(8.52 , N/A) (N/A , -0.05 , N/A)	782.9	N/A	0.9319 [1.0000]	93.2% { 86.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (7)
Acquired: 2023/01/05 - 19:37

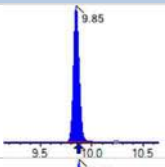
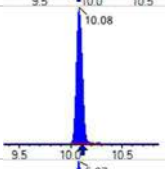
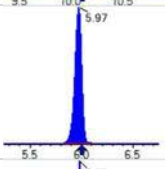
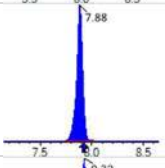
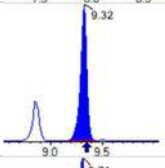
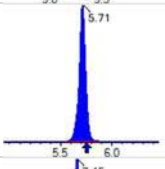
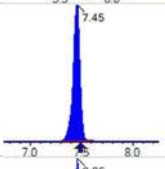
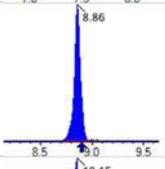
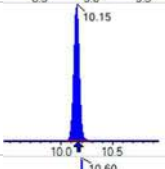
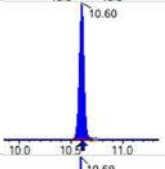
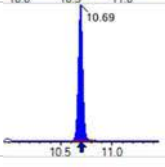
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 302792	(9.19 , N/A) (N/A , -0.04 , N/A)	370.7	N/A	0.9683 [1.0000]	96.8% { 77.4% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 548291	(7.89 , N/A) (N/A , -0.05 , N/A)	665.8	N/A	0.9336 [1.0000]	93.4% { 95.9% }			
13C4_PFOS_IIS	(503.0 / 79.9) 600390	(9.32 , N/A) (N/A , -0.04 , N/A)	520.2	N/A	1.0171 [1.0000]	101.7% { 92.9% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1234509	(3.60 , N/A) (N/A , -0.03 , N/A)	584.5	N/A	8.1492 [8.0000]	101.9% { 86.2% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 865527	(4.89 , N/A) (N/A , -0.04 , N/A)	646.6	N/A	3.6346 [4.0000]	90.9% { 85.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 593659	(6.04 , N/A) (N/A , -0.04 , N/A)	603.7	N/A	1.9265 [2.0000]	96.3% { 90.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 529971	(6.96 , N/A) (N/A , -0.05 , N/A)	540.5	N/A	1.9205 [2.0000]	96.0% { 95.3% }			
13C8_PFOA_EIS	(421.0 / 376.0) 596938	(7.78 , N/A) (N/A , -0.05 , N/A)	650.5	N/A	2.0097 [2.0000]	100.5% { 90.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 246951	(8.52 , N/A) (N/A , -0.05 , N/A)	412.4	N/A	0.9573 [1.0000]	95.7% { 84.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 338114	(9.19 , N/A) (N/A , -0.04 , N/A)	431.1	N/A	0.9517 [1.0000]	95.2% { 77.6% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 428013	(9.66 , N/A) (N/A , -0.02 , N/A)	527.4	N/A	0.9108 [1.0000]	91.1% { 87.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (7)
Acquired: 2023/01/05 - 19:37

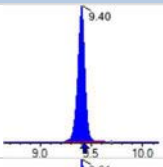
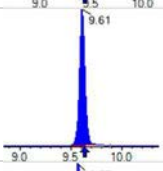
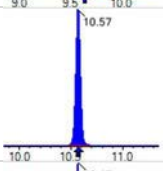
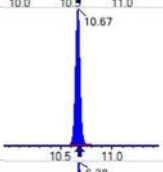
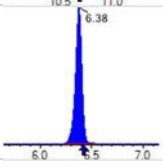
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 469536	(9.85 , N/A) (N/A , -0.02 , N/A)	553.2	N/A	0.9864 [1.0000]	98.6% { 89.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 298419	(10.08 , N/A) (N/A , -0.01 , N/A)	1481.7	N/A	0.8762 [1.0000]	87.6% { 87.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1425940	(5.97 , N/A) (N/A , -0.04 , N/A)	648.4	N/A	1.8687 [2.0000]	93.4% { 85.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 916158	(7.88 , N/A) (N/A , -0.05 , N/A)	750.9	N/A	2.0190 [2.0000]	100.9% { 88.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1341939	(9.32 , N/A) (N/A , -0.04 , N/A)	110.2	N/A	1.8201 [2.0000]	91.0% { 90.6% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 450896	(5.71 , N/A) (N/A , -0.05 , N/A)	536.0	N/A	3.4866 [4.0000]	87.2% { 79.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 643832	(7.45 , N/A) (N/A , -0.05 , N/A)	699.1	N/A	3.5698 [4.0000]	89.2% { 78.8% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 763248	(8.86 , N/A) (N/A , -0.05 , N/A)	592.9	N/A	4.1459 [4.0000]	103.6% { 95.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1233042	(10.15 , N/A) (N/A , -0.01 , N/A)	899.9	N/A	1.5006 [2.0000]	75.0% { 68.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 335487	(10.60 , N/A) (N/A , -0.01 , N/A)	1230.0	N/A	1.8478 [2.0000]	92.4% { 97.2% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 292376	(10.69 , N/A) (N/A , -0.01 , N/A)	887.2	N/A	1.7702 [2.0000]	88.5% { 86.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (7)
Acquired: 2023/01/05 - 19:37

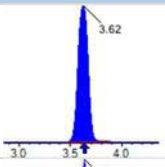
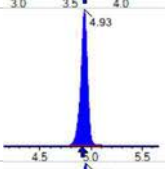
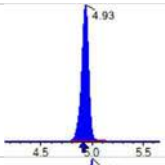
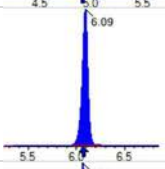
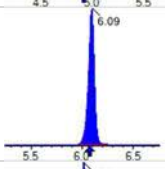
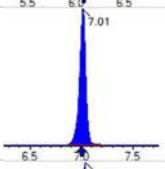
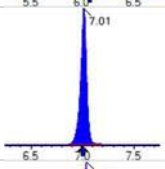
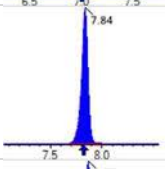
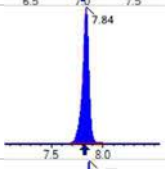
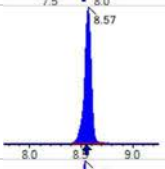
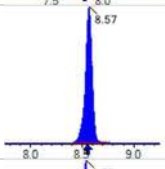
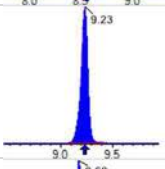
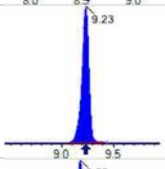
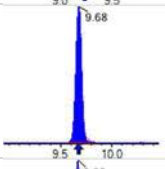
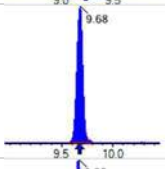
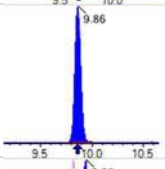
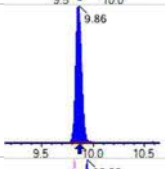
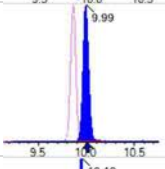
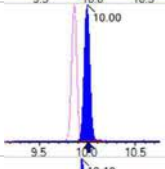
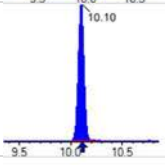
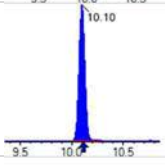
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 951673	(9.40 , N/A) (N/A , -0.03 , N/A)	353.2	N/A	3.7202 [4.0000]	93.0% { 97.3% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 718651	(9.61 , N/A) (N/A , -0.02 , N/A)	148.1	N/A	3.2382 [4.0000]	81.0% { 76.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 512030	(10.57 , N/A) (N/A , -0.01 , N/A)	840.2	N/A	17.5057 [20.0000]	87.5% { 87.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 239099	(10.67 , N/A) (N/A , -0.01 , N/A)	854.3	N/A	17.9322 [20.0000]	89.7% { 81.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1294203	(6.38 , N/A) (N/A , -0.05 , N/A)	630.4	N/A	7.6229 [8.0000]	95.3% { 88.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (8)
Acquired: 2023/01/05 - 19:50

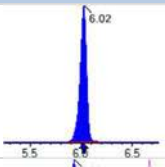
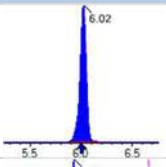
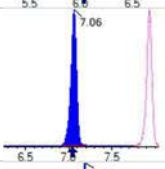
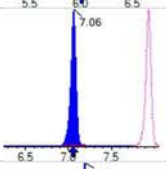
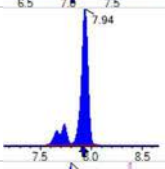
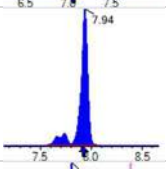
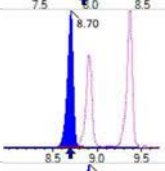
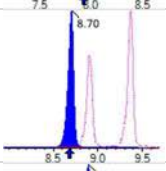
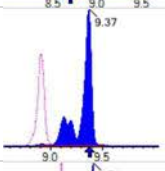
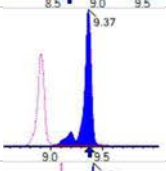
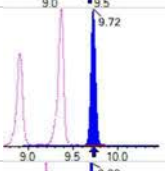
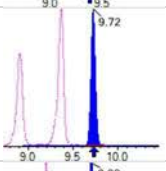
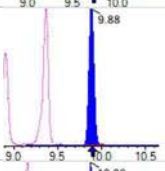
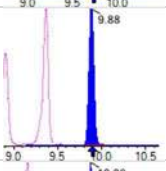
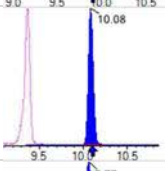
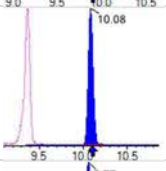
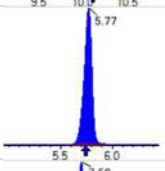
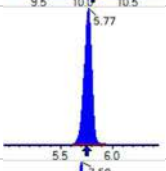
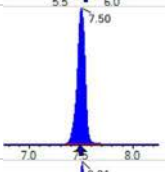
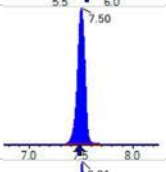
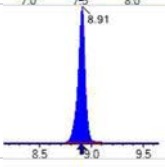
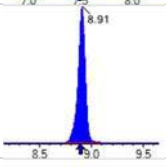
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 23923267	(3.62 , 1.00) (0.00 , N/A , 0.0)	453.3	N/A 0.0 0.0	204.1567 [200.0000]	102.1%			
PFPeA	(263.0 / 219.0) 18986644 (263.0 / 69.0) 220676	(4.93 , 1.00) (0.00 , N/A , 0.0)	588.9 519.2	0.0116 95.7 95.7	103.7819 [100.0000]	103.8%			
PFHxA	(313.0 / 269.0) 14017484 (313.0 / 119.0) 1300662	(6.09 , 1.00) (0.00 , N/A , 0.0)	601.7 590.5	0.0928 92.9 92.9	54.0113 [50.0000]	108.0%			
PFHpA	(363.0 / 319.0) 13018346 (363.0 / 169.0) 3939274	(7.01 , 1.00) (0.00 , N/A , 0.0)	645.1 635.8	0.3026 101.5 101.5	50.1506 [50.0000]	100.3%			
PFOA	(413.0 / 369.0) 15225004 (413.0 / 169.0) 4862353	(7.84 , 1.00) (0.00 , N/A , -0.1)	578.5 599.8	0.3194 96.4 96.4	49.5935 [50.0000]	99.2%			
PFNA	(463.0 / 419.0) 11984937 (463.0 / 169.0) 2510439	(8.57 , 1.00) (0.00 , N/A , 0.1)	622.4 617.6	0.2095 91.3 91.3	48.6936 [50.0000]	97.4%			
PFDA	(513.0 / 469.0) 17346910 (513.0 / 169.0) 1622356	(9.23 , 1.00) (0.01 , N/A , 0.0)	531.5 439.2	0.0935 97.9 97.9	50.0462 [50.0000]	100.1%			
PFUnA	(563.0 / 519.0) 16423487 (563.0 / 169.0) 1533340	(9.68 , 1.00) (0.00 , N/A , 0.0)	802.9 493.4	0.0934 93.4 93.4	53.2798 [50.0000]	106.6%			
PFDoA	(613.0 / 569.0) 18542297 (613.0 / 169.0) 2413973	(9.86 , 1.00) (0.00 , N/A , 0.2)	808.7 635.0	0.1302 106.1 106.1	51.4726 [50.0000]	102.9%			
PFTrDA	(663.0 / 619.0) 16868534 (663.0 / 169.0) 3338319	(9.99 , 1.01) (N/A , 0.00 , -0.2)	914.1 666.3	0.1979 101.3 101.3	49.3038 [50.0000]	98.6%			
PFTeDA	(713.0 / 669.0) 14330972 (713.0 / 169.0) 2549162	(10.10 , 1.00) (0.00 , N/A , 0.1)	1004.4 727.2	0.1779 93.5 93.5	44.9333 [50.0000]	89.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (8)
Acquired: 2023/01/05 - 19:50

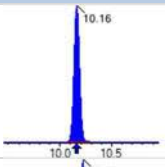
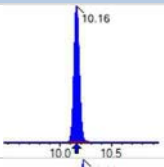
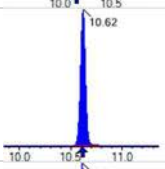
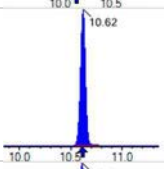
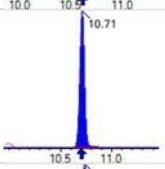
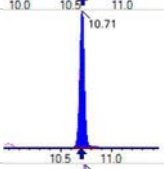
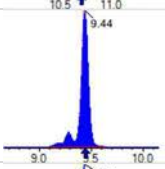
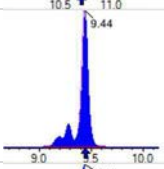
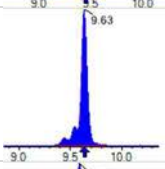
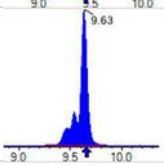
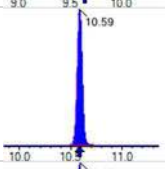
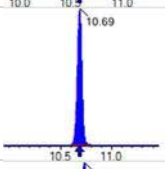
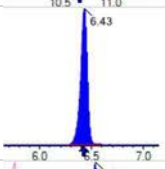
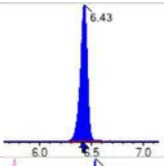
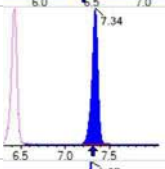
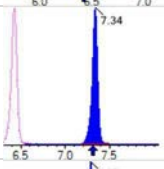
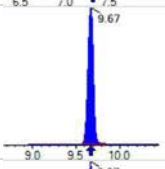
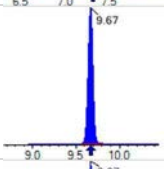
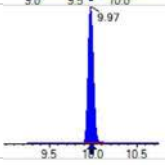
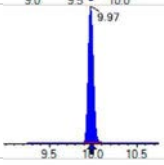
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 19755853 (299.0 / 99.0) 13601969	(6.02 , 1.00) (0.00 , N/A , 0.2)	608.7 747.3	0.6885 105.7 105.7	46.7791 [44.2367]	105.7%			
PFPeS	(349.0 / 80.0) 34233604 (349.0 / 99.0) 13878962	(7.06 , 0.89) (N/A , 0.00 , 0.0)	620.3 647.3	0.4054 110.2 110.2	41.0809 [46.9191]	87.6%			
PFHxS	(399.0 / 80.0) 34660509 (399.0 / 99.0) 12151123	(7.94 , 1.00) (0.00 , N/A , 0.0)	680.0 872.0	0.3506 101.7 101.7	45.1250 [45.5491]	99.1%			
PFHpS	(449.0 / 80.0) 29621594 (449.0 / 99.0) 8769766	(8.70 , 0.93) (N/A , 0.00 , -0.2)	605.4 671.3	0.2961 105.9 105.9	48.7207 [47.5703]	102.4%			
PFOS	(499.0 / 80.0) 33169924 (499.0 / 99.0) 8174317	(9.37 , 1.00) (0.00 , N/A , 0.1)	357.0 857.4	0.2464 109.7 109.7	44.9203 [46.3746]	96.9%			
PFNS	(549.0 / 80.0) 31460643 (549.0 / 99.0) 9667522	(9.72 , 1.04) (N/A , 0.00 , 0.1)	812.2 966.7	0.3073 121.6 121.6	38.3845 [47.9943]	80.0%			
PFDS	(599.0 / 80.0) 39273857 (599.0 / 99.0) 10112205	(9.88 , 1.06) (N/A , 0.00 , 0.0)	1280.1 1265.5	0.2575 111.1 111.1	44.1044 [48.1553]	91.6%			
PFDoS	(699.0 / 80.0) 16788974 (699.0 / 99.0) 3674541	(10.08 , 1.08) (N/A , 0.00 , 0.1)	1456.7 1401.0	0.2189 94.2 94.2	44.7860 [48.4781]	92.4%			
4:2FTS	(327.0 / 307.0) 56487991 (327.0 / 81.0) 34277877	(5.77 , 1.00) (0.00 , N/A , 0.1)	508.3 606.9	0.6068 110.5 110.5	161.3922 [186.9055]	86.3%			
6:2FTS	(427.0 / 407.0) 40030616 (427.0 / 81.0) 30709941	(7.50 , 1.00) (0.00 , N/A , 0.0)	473.6 660.5	0.7672 105.6 105.6	143.4301 [189.8085]	75.6%			
8:2FTS	(527.0 / 507.0) 38693799 (527.0 / 81.0) 25295280	(8.91 , 1.00) (0.00 , N/A , 0.0)	456.1 405.3	0.6537 98.0 98.0	148.3498 [191.6577]	77.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (8)
Acquired: 2023/01/05 - 19:50

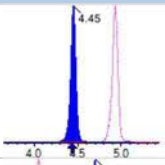
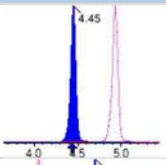
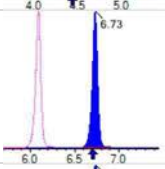
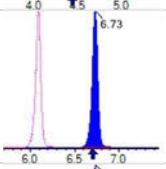
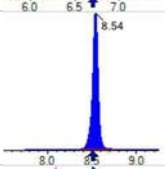
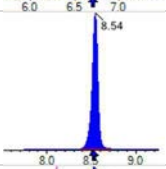
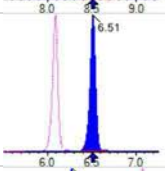
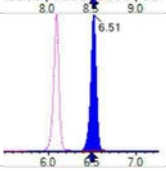
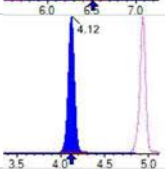
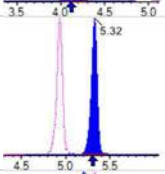
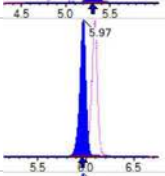
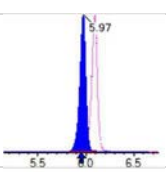
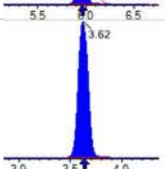
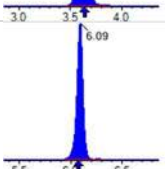
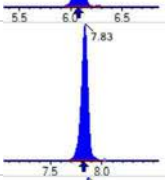
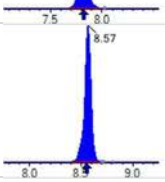
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 31981132 (498.0 / 478.0) 821314	(10.16 , 1.00) (0.00 , N/A , 0.1)	1036.2 769.6	0.0257 108.4 108.4	45.0865 [50.0000]	90.2%			
NMeFOSA	(512.0 / 219.0) 23947328 (512.0 / 169.0) 16831144	(10.62 , 1.00) (0.00 , N/A , 0.0)	784.0 842.5	0.7028 98.0 98.0	149.8985 [200.0000]	74.9%			
NEtFOSA	(526.0 / 219.0) 23932277 (526.0 / 169.0) 24358722	(10.71 , 1.00) (0.00 , N/A , 0.1)	1014.3 1081.6	1.0178 94.6 94.6	191.1428 [200.0000]	95.6%			
NMeFOSAA	(570.0 / 419.0) 10344457 (570.0 / 483.0) 4995935	(9.44 , 1.00) (0.00 , N/A , -0.1)	737.7 532.7	0.4830 101.2 101.2	43.3507 [50.0000]	86.7%			
NEtFOSAA	(584.0 / 419.0) 7205780 (584.0 / 526.0) 4014092	(9.63 , 1.00) (0.01 , N/A , 0.1)	907.4 498.6	0.5571 87.6 87.6	50.7349 [50.0000]	101.5%			
NMeFOSE	(616.0 / 59.0) 5171015	(10.59 , 1.00) (0.01 , N/A , 0.0)	1174.9	N/A 0.0 0.0	201.9805 [200.0000]	101.0%			
NEtFOSE	(630.0 / 59.0) 1115865	(10.69 , 1.00) (0.01 , N/A , 0.0)	1441.3	N/A 0.0 0.0	211.7845 [200.0000]	105.9%			
HFPO-DA	(285.0 / 169.0) 9484093 (285.0 / 185.0) 27916580	(6.43 , 1.00) (0.00 , N/A , 0.1)	502.0 530.8	2.9435 91.3 91.3	103.6373 [100.0000]	103.6%			
ADONA	(377.0 / 85.0) 40619120 (377.0 / 251.0) 5834618	(7.34 , 1.14) (N/A , 0.00 , 0.0)	616.1 595.5	0.1436 114.9 114.9	82.8681 [94.2700]	87.9%			
9Cl-Pf3ONS	(531.0 / 351.0) 72315677 (533.0 / 353.0) 34309595	(9.67 , 1.50) (N/A , 0.00 , 0.1)	566.3 744.0	0.4744 156.6 156.6	83.4271 [93.3254]	89.4%			IR2,
11Cl-PF3OUDS	(631.0 / 451.0) 45732041 (633.0 / 453.0) 17088631	(9.97 , 1.55) (N/A , 0.00 , 0.0)	1160.5 1284.6	0.3737 129.9 129.9	70.4300 [94.3208]	74.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (8)
Acquired: 2023/01/05 - 19:50

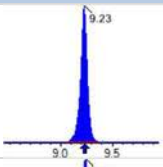
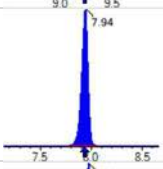
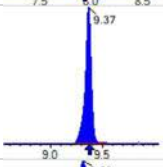
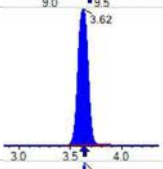
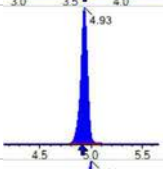
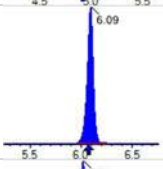
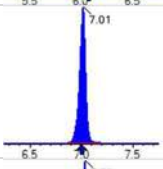
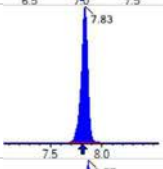
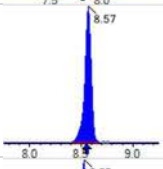
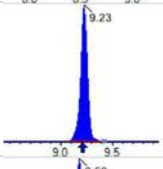
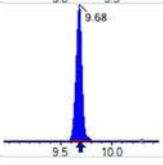
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 1197625 (241.0 / 117.0) 1871040	(4.45 , 0.90) (N/A , 0.01 , 0.0)	659.6 675.4	1.5623 100.1 100.1	223.3680 [200.0000]	111.7%			
5:3FTCA	(341.0 / 236.7) 9395547 (341.0 / 217.0) 15978071	(6.73 , 1.11) (N/A , 0.01 , 0.0)	583.5 507.9	1.7006 91.6 91.6	232.6288 [200.0000]	116.3%			
7:3FTCA	(441.0 / 317.0) 12593686 (441.0 / 337.0) 9980424	(8.54 , 1.40) (N/A , 0.00 , 0.0)	555.9 579.5	0.7925 98.8 98.8	221.8712 [200.0000]	110.9%			
PFEESA	(315.0 / 135.0) 23213514 (315.0 / 83.0) 7136642	(6.51 , 1.07) (N/A , 0.00 , 0.0)	626.5 775.7	0.3074 97.7 97.7	93.1053 [89.2459]	104.3%			
PFMPA	(229.0 / 85.0) 4911828	(4.12 , 0.83) (N/A , 0.01 , 0.0)	1029.5	N/A 0.0 0.0	106.8297 [100.0000]	106.8%			
PFMBA	(279.0 / 85.0) 14913585	(5.32 , 1.08) (N/A , 0.01 , 0.0)	597.6	N/A 0.0 0.0	107.7625 [100.0000]	107.8%			
NFDHA	(295.0 / 201.0) 12051755 (295.0 / 85.0) 11366824	(5.97 , 0.98) (N/A , 0.01 , 0.0)	528.1 585.9	0.9432 97.2 97.2	103.9632 [100.0000]	104.0%			
13C3_PFBA_IIS	(216.0 / 172.0) 132148	(3.62 , N/A) (N/A , 0.00 , N/A)	399.5	N/A	0.7818 [1.0000]	78.2% { 74.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 271799	(6.09 , N/A) (N/A , 0.01 , N/A)	552.9	N/A	0.9100 [1.0000]	91.0% { 83.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 298993	(7.83 , N/A) (N/A , 0.00 , N/A)	462.6	N/A	0.9038 [1.0000]	90.4% { 82.9% }			
13C5_PFNA_IIS	(468.0 / 423.0) 260458	(8.57 , N/A) (N/A , 0.00 , N/A)	461.4	N/A	0.9342 [1.0000]	93.4% { 87.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (8)
Acquired: 2023/01/05 - 19:50

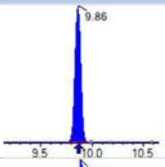
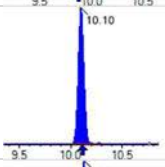
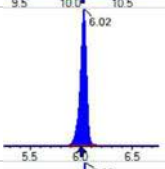
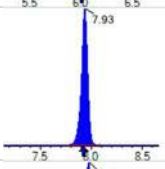
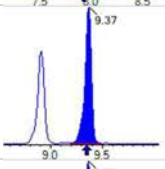
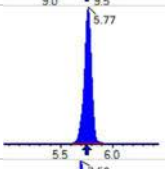
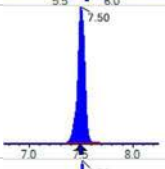
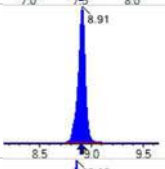
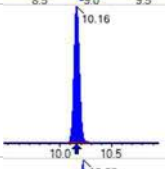
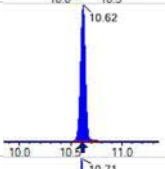
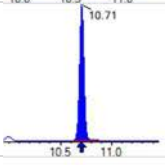
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 296681	(9.23 , N/A) (N/A , 0.00 , N/A)	397.1	N/A	0.9488 [1.0000]	94.9% { 75.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 568077	(7.94 , N/A) (N/A , 0.00 , N/A)	772.4	N/A	0.9673 [1.0000]	96.7% { 99.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 556773	(9.37 , N/A) (N/A , 0.00 , N/A)	343.1	N/A	0.9432 [1.0000]	94.3% { 86.1% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1021565	(3.62 , N/A) (N/A , 0.00 , N/A)	577.8	N/A	7.7610 [8.0000]	97.0% { 71.4% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 777126	(4.93 , N/A) (N/A , 0.01 , N/A)	544.5	N/A	3.5342 [4.0000]	88.4% { 77.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 528468	(6.09 , N/A) (N/A , 0.01 , N/A)	641.1	N/A	1.8573 [2.0000]	92.9% { 80.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 507525	(7.01 , N/A) (N/A , 0.00 , N/A)	465.0	N/A	1.9918 [2.0000]	99.6% { 91.3% }			
13C8_PFOA_EIS	(421.0 / 376.0) 581867	(7.83 , N/A) (N/A , 0.00 , N/A)	652.5	N/A	1.9643 [2.0000]	98.2% { 88.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 251965	(8.57 , N/A) (N/A , 0.00 , N/A)	545.6	N/A	0.9744 [1.0000]	97.4% { 85.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 335336	(9.23 , N/A) (N/A , 0.00 , N/A)	328.5	N/A	0.9633 [1.0000]	96.3% { 77.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 343908	(9.68 , N/A) (N/A , 0.00 , N/A)	520.4	N/A	0.7469 [1.0000]	74.7% { 70.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (8)
Acquired: 2023/01/05 - 19:50

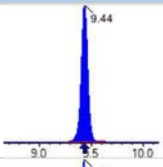
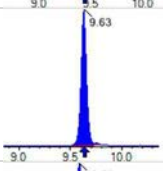
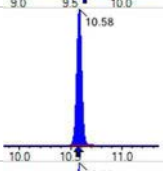
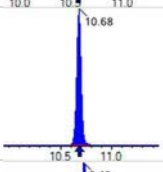
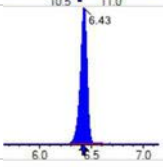
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 394873	(9.86 , N/A) (N/A , 0.00 , N/A)	366.1	N/A	0.8467 [1.0000]	84.7% { 75.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 320132	(10.10 , N/A) (N/A , 0.00 , N/A)	833.7	N/A	0.9593 [1.0000]	95.9% { 93.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1334745	(6.02 , N/A) (N/A , 0.01 , N/A)	629.9	N/A	1.6883 [2.0000]	84.4% { 80.4% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 912611	(7.93 , N/A) (N/A , 0.00 , N/A)	592.8	N/A	1.9411 [2.0000]	97.1% { 88.2% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1261986	(9.37 , N/A) (N/A , 0.01 , N/A)	66.7	N/A	1.8458 [2.0000]	92.3% { 85.2% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 404968	(5.77 , N/A) (N/A , 0.01 , N/A)	571.7	N/A	3.0224 [4.0000]	75.6% { 71.8% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 694640	(7.50 , N/A) (N/A , 0.00 , N/A)	550.7	N/A	3.7174 [4.0000]	92.9% { 85.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 689756	(8.91 , N/A) (N/A , 0.00 , N/A)	453.1	N/A	3.6162 [4.0000]	90.4% { 86.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1280310	(10.16 , N/A) (N/A , 0.00 , N/A)	542.6	N/A	1.6802 [2.0000]	84.0% { 70.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 348322	(10.62 , N/A) (N/A , 0.01 , N/A)	683.0	N/A	2.0688 [2.0000]	103.4% { 100.9% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 249940	(10.71 , N/A) (N/A , 0.01 , N/A)	540.7	N/A	1.6318 [2.0000]	81.6% { 73.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (8)
Acquired: 2023/01/05 - 19:50

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1024666	(9.44 , N/A) (N/A , 0.00 , N/A)	479.7	N/A	4.3194 [4.0000]	108.0% { 104.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 633901	(9.63 , N/A) (N/A , 0.00 , N/A)	199.0	N/A	3.0800 [4.0000]	77.0% { 67.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 411332	(10.58 , N/A) (N/A , 0.00 , N/A)	780.1	N/A	15.1646 [20.0000]	75.8% { 70.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 199036	(10.68 , N/A) (N/A , 0.00 , N/A)	1035.3	N/A	16.0969 [20.0000]	80.5% { 68.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1212723	(6.43 , N/A) (N/A , 0.00 , N/A)	506.3	N/A	7.7357 [8.0000]	96.7% { 83.1% }			

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2253011
Laboratory ID: SB04012-SCV1
Sequence: SB04012
Standard ID: 22L0452

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	8.00	8.01	0.09	30.00
PFPEA	4.00	4.07	1.8	30.00
PFHXA	2.00	1.87	-6.6	30.00
PFHPA	2.00	1.88	-5.8	30.00
PFOA	2.00	2.08	3.9	30.00
PFNA	2.00	2.21	10.7	30.00
PFDA	2.00	2.35	17.5	30.00
PFUnA	2.00	1.90	-5.0	30.00
PFDOA	2.00	2.04	2.0	30.00
PFTRDA	2.00	2.51	25.4	30.00
PFTEDA	2.00	1.93	-3.7	30.00
PFBS	1.77	1.66	-6.2	30.00
PFPES	1.88	2.02	7.4	30.00
PFHXS	1.83	1.85	1.3	30.00
PFHPS	1.91	1.86	-2.8	30.00
PFOS	1.86	1.94	4.3	30.00
PFNS	1.92	2.01	4.8	30.00
PFDS	1.93	1.84	-4.8	30.00
PFDOS	1.94	2.01	3.4	30.00
4:2FTS	7.50	7.21	-3.9	30.00
6:2FTS	7.60	8.08	6.3	30.00
8:2FTS	7.68	7.95	3.5	30.00
PFOSA	2.00	1.90	-5.0	30.00
NMeFOSA	8.00	7.67	-4.2	30.00
NEtFOSA	8.00	7.78	-2.7	30.00
NMeFOSAA	2.00	2.26	12.8	30.00
NEtFOSAA	2.00	2.01	0.6	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2253011
Laboratory ID: SB04012-SCV1
Sequence: SB04012
Standard ID: 22L0452

NMeFOSE	8.00	8.06	0.7	30.00
NEtFOSE	8.00	8.23	2.9	30.00
HFPO-DA	4.00	3.82	-4.4	30.00
ADONA	3.78	3.88	2.6	30.00
PFEESA	3.56	3.17	-11.1	30.00
PFMPA	4.00	4.11	2.8	30.00
PFMBA	4.00	3.87	-3.3	30.00
NFDHA	4.00	3.84	-4.0	30.00
9CL-PF3ONS	3.74	3.57	-4.6	30.00
11CL-PF3OUDS	3.78	4.21	11.3	30.00
3:3FTCA	8.00	7.82	-2.2	30.00
5:3FTCA	8.00	7.12	-11.0	30.00
7:3FTCA	8.00	7.26	-9.3	30.00
13C4-PFBA	8.00	7.92	-1.1	30.00
13C5-PFPEA	4.00	3.86	-3.4	30.00
13C5-PFHXA	2.00	2.00	-0.02	30.00
13C4-PFHPA	2.00	1.96	-1.9	30.00
13C8-PFOA	2.00	1.95	-2.4	30.00
13C9-PFNA	1.00	1.08	8.1	30.00
13C6-PFDA	1.00	0.870	-13.0	30.00
13C7-PFUnA	1.00	1.05	5.0	30.00
13C2-PFDOA	1.00	0.932	-6.8	30.00
13C2-PFTEDA	1.00	1.06	6.2	30.00
13C3-PFBS	2.00	2.04	2.1	30.00
13C3-PFHXS	2.00	1.97	-1.6	30.00
13C8-PFOS	2.00	1.93	-3.4	30.00
13C2-4:2FTS	4.00	4.63	15.8	30.00
13C2-6:2FTS	4.00	4.21	5.2	30.00
13C2-8:2FTS	4.00	4.01	0.2	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2253011
Laboratory ID: SB04012-SCV1
Sequence: SB04012
Standard ID: 22L0452

13C8-PFOSA	2.00	2.08	4.0	30.00
D5-NETFOSA	2.00	2.16	8.0	30.00
D3-NMEFOSA	2.00	2.02	0.9	30.00
D3-NMEFOSAA	4.00	3.59	-10.3	30.00
D5-NETFOSAA	4.00	4.12	2.9	30.00
D7-NMEFOSE	20.0	20.7	3.6	30.00
D9-NETFOSE	20.0	22.8	13.8	30.00
13C3-HFPO-DA	8.00	7.80	-2.6	30.00

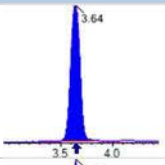
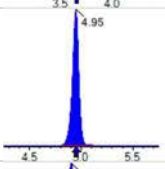
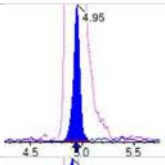
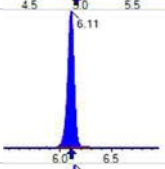
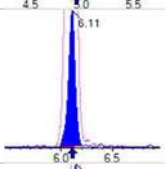
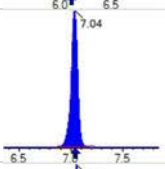
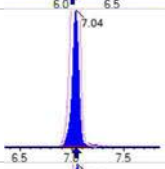
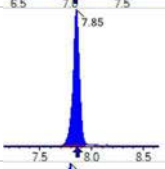
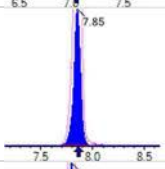
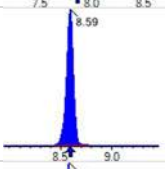
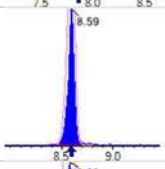
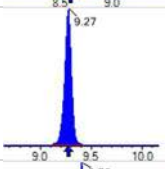
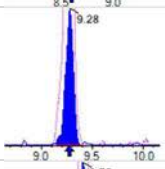
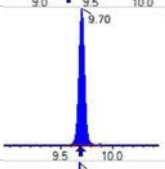
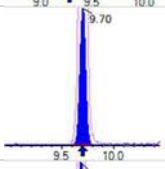
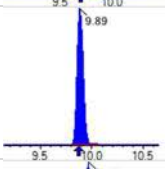
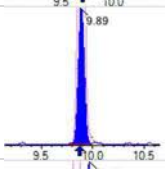
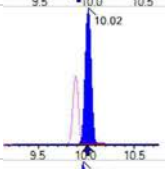
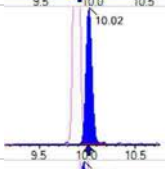
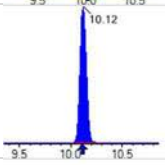
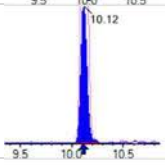
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB04012-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-27.dam

Quant Method: 1633 - S2022-12-29A
Path: S2022-12-29A (10)
Acquired: 2022/12/29 - 14:03

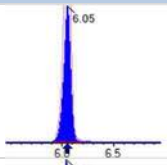
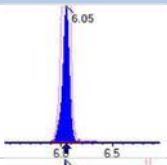
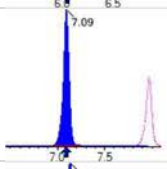
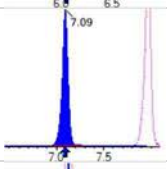
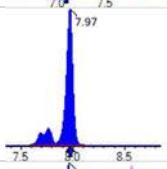
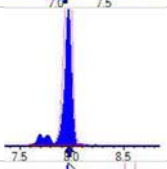
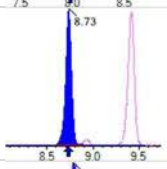
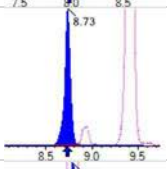
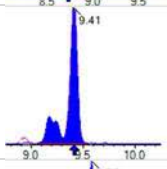
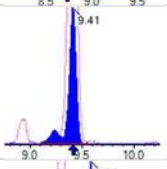
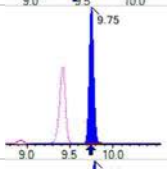
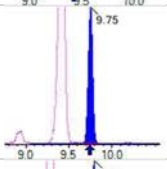
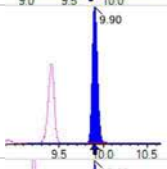
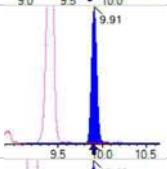
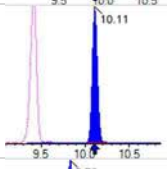
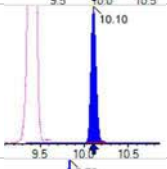
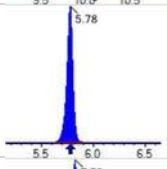
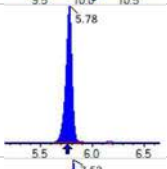
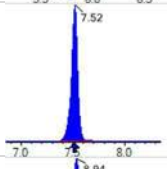
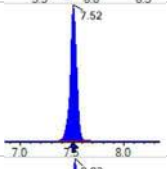
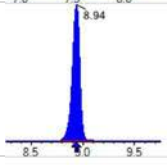
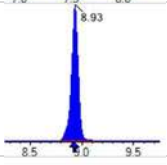
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 1812704	(3.64 , 1.00) (0.00 , N/A , 0.0)	391.2	N/A 0.0 0.0	8.0069 [8.0000]	100.1%			
PFPeA	(263.0 / 219.0) 1169044 (263.0 / 69.0) 13046	(4.95 , 1.00) (0.00 , N/A , 0.0)	594.7 157.9	0.0112 108.0 108.0	4.0729 [4.0000]	101.8%			
PFHxA	(313.0 / 269.0) 787341 (313.0 / 119.0) 74425	(6.11 , 1.00) (0.00 , N/A , 0.1)	482.3 240.2	0.0945 97.1 97.1	1.8689 [2.0000]	93.4%			
PFHpA	(363.0 / 319.0) 714377 (363.0 / 169.0) 194873	(7.04 , 1.00) (0.00 , N/A , -0.1)	618.0 374.1	0.2728 95.3 95.3	1.8844 [2.0000]	94.2%			
PFOA	(413.0 / 369.0) 851624 (413.0 / 169.0) 244443	(7.85 , 1.00) (0.00 , N/A , 0.0)	469.1 630.1	0.2870 94.5 94.5	2.0772 [2.0000]	103.9%			
PFNA	(463.0 / 419.0) 650559 (463.0 / 169.0) 130108	(8.59 , 1.00) (0.00 , N/A , -0.3)	498.9 311.7	0.2000 94.5 94.5	2.2149 [2.0000]	110.7%			
PFDA	(513.0 / 469.0) 872574 (513.0 / 169.0) 79380	(9.27 , 1.00) (0.00 , N/A , -0.3)	541.1 213.2	0.0910 98.7 98.7	2.3506 [2.0000]	117.5%			
PFUnA	(563.0 / 519.0) 962768 (563.0 / 169.0) 89172	(9.70 , 1.00) (0.00 , N/A , -0.1)	472.9 231.3	0.0926 120.4 120.4	1.8998 [2.0000]	95.0%			
PFDoA	(613.0 / 569.0) 962090 (613.0 / 169.0) 154959	(9.89 , 1.00) (0.00 , N/A , -0.1)	564.0 282.3	0.1611 119.6 119.6	2.0401 [2.0000]	102.0%			
PFTrDA	(663.0 / 619.0) 1031920 (663.0 / 169.0) 176405	(10.02 , 1.01) (N/A , 0.01 , 0.2)	672.7 383.9	0.1709 78.5 78.5	2.5078 [2.0000]	125.4%			
PFTeDA	(713.0 / 669.0) 692460 (713.0 / 169.0) 120925	(10.12 , 1.00) (0.00 , N/A , 0.1)	923.6 337.9	0.1746 88.5 88.5	1.9265 [2.0000]	96.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB04012-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-27.dam

Quant Method: 1633 - S2022-12-29A
Path: S2022-12-29A (10)
Acquired: 2022/12/29 - 14:03

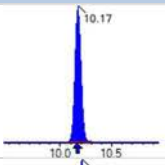
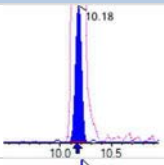
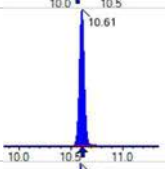
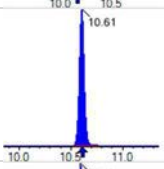
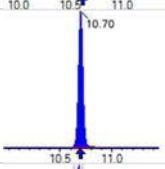
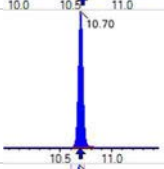
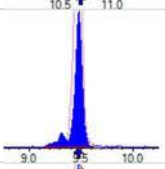
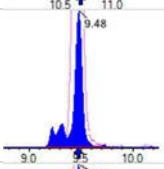
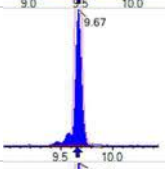
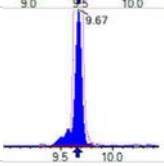
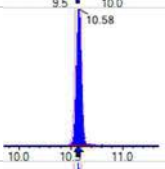
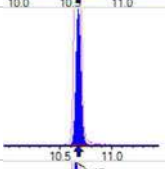
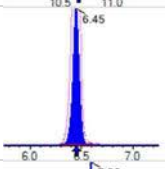
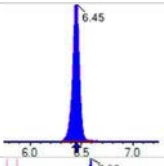
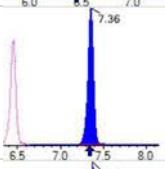
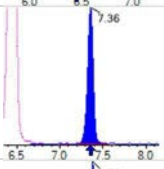
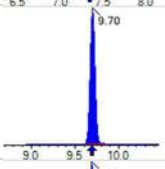
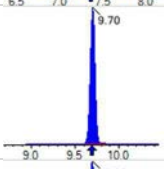
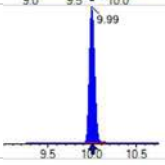
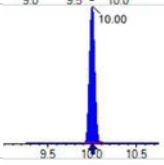
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 1002005 (299.0 / 99.0) 637150	(6.05 , 1.00) (0.00 , N/A , 0.1)	581.3 569.0	0.6359 96.8 96.8	1.6599 [1.7695]	93.8%			
PFPeS	(349.0 / 80.0) 1961555 (349.0 / 99.0) 687372	(7.09 , 0.89) (N/A , 0.00 , 0.1)	655.3 532.0	0.3504 94.5 94.5	2.0194 [1.8768]	107.6%			
PFHxS	(399.0 / 80.0) 1585787 (399.0 / 99.0) 518597	(7.97 , 1.00) (0.00 , N/A , 0.2)	682.0 695.1	0.3270 100.3 100.3	1.8536 [1.8220]	101.7%			
PFHpS	(449.0 / 80.0) 1485197 (449.0 / 99.0) 385968	(8.73 , 0.93) (N/A , 0.00 , 0.0)	611.4 492.4	0.2599 99.7 99.7	1.8556 [1.9028]	97.5%			
PFOS	(499.0 / 80.0) 1787547 (499.0 / 99.0) 367051	(9.41 , 1.00) (0.00 , N/A , 0.0)	353.9 899.2	0.2053 98.7 98.7	1.9405 [1.8550]	104.6%			
PFNS	(549.0 / 80.0) 2100113 (549.0 / 99.0) 495852	(9.75 , 1.04) (N/A , 0.00 , -0.1)	741.7 664.9	0.2361 99.2 99.2	2.0113 [1.9198]	104.8%			
PFDS	(599.0 / 80.0) 2319531 (599.0 / 99.0) 569294	(9.90 , 1.05) (N/A , 0.00 , -0.2)	956.1 419.5	0.2454 93.3 93.3	1.8372 [1.9262]	95.4%			
PFDoS	(699.0 / 80.0) 1192145 (699.0 / 99.0) 260064	(10.11 , 1.07) (N/A , 0.00 , 0.2)	734.6 667.9	0.2181 111.3 111.3	2.0051 [1.9391]	103.4%			
4:2FTS	(327.0 / 307.0) 2970727 (327.0 / 81.0) 1848444	(5.78 , 1.00) (0.00 , N/A , -0.1)	645.7 451.7	0.6222 86.9 86.9	7.2068 [7.4762]	96.4%			
6:2FTS	(427.0 / 407.0) 1890650 (427.0 / 81.0) 1294916	(7.52 , 1.00) (0.00 , N/A , 0.1)	589.9 697.9	0.6849 92.7 92.7	8.0805 [7.5923]	106.4%			
8:2FTS	(527.0 / 507.0) 2167513 (527.0 / 81.0) 1423596	(8.94 , 1.00) (0.01 , N/A , 0.2)	490.9 501.5	0.6568 107.4 107.4	7.9456 [7.6663]	103.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB04012-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-27.dam

Quant Method: 1633 - S2022-12-29A
Path: S2022-12-29A (10)
Acquired: 2022/12/29 - 14:03

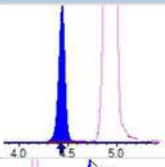
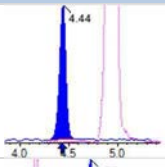
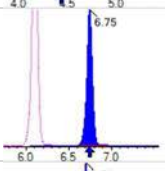
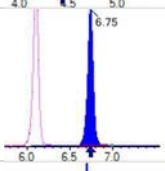
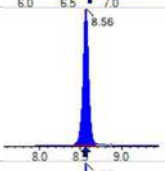
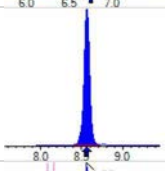
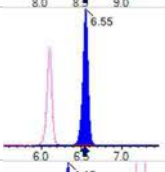
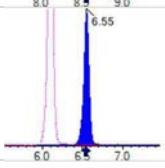
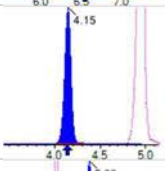
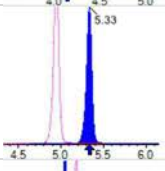
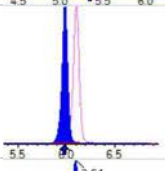
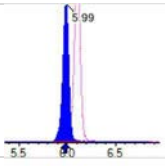
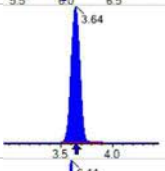
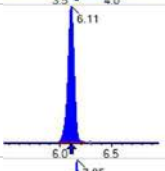
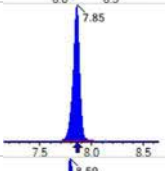
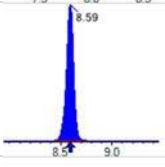
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 2192130 (498.0 / 478.0) 48154	(10.17 , 1.00) (0.00 , N/A , -0.4)	961.9 377.7	0.0220 105.2 105.2	1.9007 [2.0000]	95.0%			
NMeFOSA	(512.0 / 219.0) 1358781 (512.0 / 169.0) 965891	(10.61 , 1.00) (0.00 , N/A , 0.0)	763.7 758.9	0.7109 102.7 102.7	7.6672 [8.0000]	95.8%			
NEtFOSA	(526.0 / 219.0) 1381224 (526.0 / 169.0) 1498077	(10.70 , 1.00) (0.00 , N/A , 0.0)	928.8 974.9	1.0846 109.3 109.3	7.7848 [8.0000]	97.3%			
NMeFOSAA	(570.0 / 419.0) 472999 (570.0 / 483.0) 230828	(9.48 , 1.00) (0.01 , N/A , 0.0)	382.8 341.9	0.4880 87.7 87.7	2.2551 [2.0000]	112.8%			
NEtFOSAA	(584.0 / 419.0) 418136 (584.0 / 526.0) 247455	(9.67 , 1.00) (0.00 , N/A , -0.1)	527.3 452.0	0.5918 99.8 99.8	2.0115 [2.0000]	100.6%			
NMeFOSE	(616.0 / 59.0) 402479	(10.58 , 1.00) (0.01 , N/A , 0.0)	1037.5	N/A 0.0 0.0	8.0564 [8.0000]	100.7%			
NEtFOSE	(630.0 / 59.0) 91764	(10.68 , 1.00) (0.01 , N/A , 0.0)	795.2	N/A 0.0 0.0	8.2323 [8.0000]	102.9%			
HFPO-DA	(285.0 / 169.0) 614283 (285.0 / 185.0) 1521837	(6.45 , 1.00) (0.00 , N/A , 0.0)	752.7 701.6	2.4774 96.6 96.6	3.8231 [4.0000]	95.6%			
ADONA	(377.0 / 85.0) 2483591 (377.0 / 251.0) 295254	(7.36 , 1.14) (N/A , 0.01 , 0.0)	601.1 399.9	0.1189 96.6 96.6	3.8788 [3.7708]	102.9%			
9Cl-Pf3ONS	(531.0 / 351.0) 6241237 (533.0 / 353.0) 2228204	(9.70 , 1.50) (N/A , 0.01 , -0.1)	827.8 833.2	0.3570 113.0 113.0	3.5690 [3.7330]	95.6%			
11Cl-PF3OUDS	(631.0 / 451.0) 4165355 (633.0 / 453.0) 1150900	(9.99 , 1.55) (N/A , 0.00 , -0.1)	793.9 772.4	0.2763 89.2 89.2	4.2085 [3.7728]	111.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

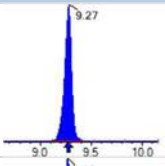
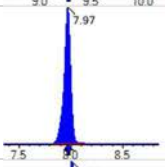
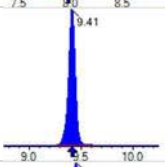
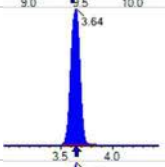
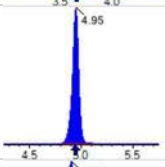
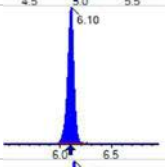
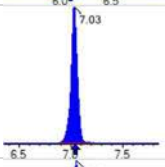
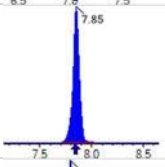
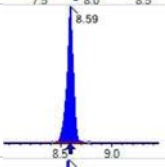
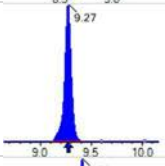
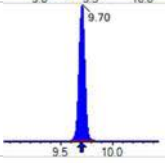
Sample I.D.: SB04012-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-27.dam

Quant Method: 1633 - S2022-12-29A
Path: S2022-12-29A (10)
Acquired: 2022/12/29 - 14:03

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 77196 (241.0 / 117.0) 96034	(4.44 , 0.90) (N/A , 0.00 , 0.1)	547.8 234.6	1.2440 94.6 94.6	7.8249 [8.0000]	97.8%			
5:3FTCA	(341.0 / 236.7) 459000 (341.0 / 217.0) 743389	(6.75 , 1.11) (N/A , 0.00 , 0.1)	443.3 535.9	1.6196 90.2 90.2	7.1181 [8.0000]	89.0%			
7:3FTCA	(441.0 / 317.0) 609788 (441.0 / 337.0) 499309	(8.56 , 1.40) (N/A , 0.00 , 0.0)	344.2 487.3	0.8188 99.3 99.3	7.2594 [8.0000]	90.7%			
PFEESA	(315.0 / 135.0) 1224330 (315.0 / 83.0) 368974	(6.55 , 1.07) (N/A , 0.00 , 0.0)	653.7 490.1	0.3014 98.8 98.8	3.1652 [3.5698]	88.7%			
PFMPA	(229.0 / 85.0) 344826	(4.15 , 0.84) (N/A , 0.01 , 0.0)	764.4	N/A 0.0 0.0	4.1136 [4.0000]	102.8%			
PFMBA	(279.0 / 85.0) 924738	(5.33 , 1.08) (N/A , 0.00 , 0.0)	717.7	N/A 0.0 0.0	3.8684 [4.0000]	96.7%			
NFDHA	(295.0 / 201.0) 794415 (295.0 / 85.0) 659847	(5.99 , 0.98) (N/A , 0.00 , 0.0)	633.9 610.6	0.8306 96.7 96.7	3.8417 [4.0000]	96.0%			
13C3_PFBA_IIS	(216.0 / 172.0) 243908	(3.64 , N/A) (N/A , 0.00 , N/A)	667.8	N/A	1.1326 [1.0000]	113.3% { 106.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 414950	(6.11 , N/A) (N/A , 0.00 , N/A)	597.2	N/A	1.0931 [1.0000]	109.3% { 106.7% }			
13C4_PFOA_IIS	(417.0 / 372.0) 385565	(7.85 , N/A) (N/A , 0.01 , N/A)	434.4	N/A	1.0681 [1.0000]	106.8% { 102.7% }			
13C5_PFNA_IIS	(468.0 / 423.0) 270918	(8.59 , N/A) (N/A , 0.00 , N/A)	468.1	N/A	0.9213 [1.0000]	92.1% { 88.6% }			

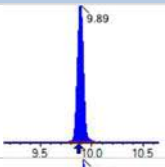
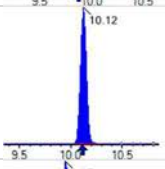
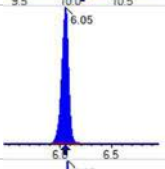
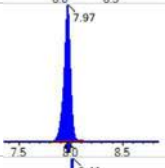
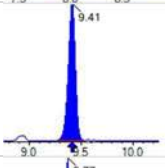
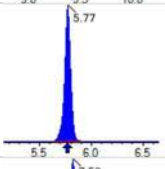
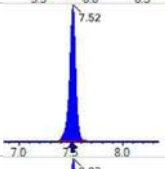
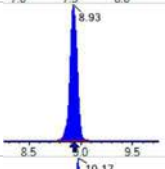
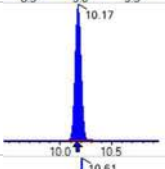
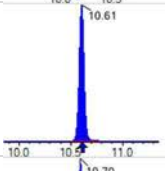
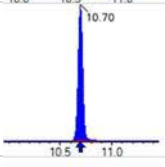
APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: SB04012-SCV1 | Quant Method: 1633 - S2022-12-29A
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2022-12-29A (10)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2022-12-27.dam | Acquired: 2022/12/29 - 14:03

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 356075	(9.27 , N/A) (N/A , 0.01 , N/A)	403.4	N/A	1.0453 [1.0000]	104.5% { 97.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 612256	(7.97 , N/A) (N/A , 0.00 , N/A)	625.9	N/A	1.0118 [1.0000]	101.2% { 96.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 679731	(9.41 , N/A) (N/A , 0.00 , N/A)	429.5	N/A	1.0542 [1.0000]	105.4% { 109.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1938437	(3.64 , N/A) (N/A , 0.00 , N/A)	648.1	N/A	7.9159 [8.0000]	98.9% { 104.6% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1209124	(4.95 , N/A) (N/A , 0.00 , N/A)	532.9	N/A	3.8623 [4.0000]	96.6% { 102.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 849099	(6.10 , N/A) (N/A , 0.00 , N/A)	604.6	N/A	1.9997 [2.0000]	100.0% { 113.5% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 723541	(7.03 , N/A) (N/A , 0.00 , N/A)	540.0	N/A	1.9615 [2.0000]	98.1% { 105.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 769737	(7.85 , N/A) (N/A , 0.00 , N/A)	544.9	N/A	1.9512 [2.0000]	97.6% { 100.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 304324	(8.59 , N/A) (N/A , 0.01 , N/A)	464.8	N/A	1.0811 [1.0000]	108.1% { 99.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 374331	(9.27 , N/A) (N/A , 0.00 , N/A)	319.1	N/A	0.8703 [1.0000]	87.0% { 86.7% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 555294	(9.70 , N/A) (N/A , 0.01 , N/A)	699.7	N/A	1.0498 [1.0000]	105.0% { 98.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: SB04012-SCV1 | Quant Method: 1633 - S2022-12-29A
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2022-12-29A (10)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2022-12-27.dam | Acquired: 2022/12/29 - 14:03

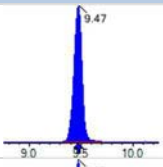
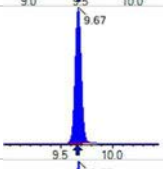
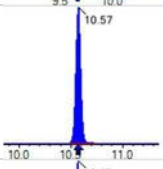
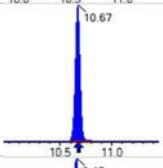
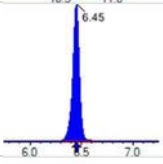
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 492077	(9.89 , N/A) (N/A , 0.01 , N/A)	428.5	N/A	0.9322 [1.0000]	93.2% { 85.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 355337	(10.12 , N/A) (N/A , 0.00 , N/A)	955.1	N/A	1.0624 [1.0000]	106.2% { 106.3% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1892500	(6.05 , N/A) (N/A , 0.00 , N/A)	627.8	N/A	2.0424 [2.0000]	102.1% { 103.4% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 987867	(7.97 , N/A) (N/A , 0.01 , N/A)	687.2	N/A	1.9689 [2.0000]	98.4% { 99.4% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1582127	(9.41 , N/A) (N/A , 0.01 , N/A)	219.2	N/A	1.9314 [2.0000]	96.6% { 96.4% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 484892	(5.77 , N/A) (N/A , 0.00 , N/A)	607.3	N/A	4.6318 [4.0000]	115.8% { 111.8% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 582929	(7.52 , N/A) (N/A , 0.01 , N/A)	760.1	N/A	4.2084 [4.0000]	105.2% { 101.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 699530	(8.93 , N/A) (N/A , 0.00 , N/A)	486.2	N/A	4.0063 [4.0000]	100.2% { 110.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1988959	(10.17 , N/A) (N/A , 0.00 , N/A)	934.3	N/A	2.0803 [2.0000]	104.0% { 110.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 364872	(10.61 , N/A) (N/A , 0.00 , N/A)	807.9	N/A	2.0181 [2.0000]	100.9% { 98.8% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 357751	(10.70 , N/A) (N/A , 0.00 , N/A)	1157.6	N/A	2.1603 [2.0000]	108.0% { 105.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB04012-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-27.dam

Quant Method: 1633 - S2022-12-29A
Path: S2022-12-29A (10)
Acquired: 2022/12/29 - 14:03

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 924537	(9.47 , N/A) (N/A , 0.01 , N/A)	430.7	N/A	3.5872 [4.0000]	89.7% { 90.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 843451	(9.67 , N/A) (N/A , 0.01 , N/A)	117.5	N/A	4.1160 [4.0000]	102.9% { 116.5% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 818365	(10.57 , N/A) (N/A , 0.00 , N/A)	829.4	N/A	20.7177 [20.0000]	103.6% { 101.4% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 414418	(10.67 , N/A) (N/A , 0.00 , N/A)	1111.7	N/A	22.7516 [20.0000]	113.8% { 108.5% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1851733	(6.45 , N/A) (N/A , 0.00 , N/A)	584.3	N/A	7.7954 [8.0000]	97.4% { 105.3% }			

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2302001
Laboratory ID: SC00059-SCV1
Sequence: SC00059
Standard ID: 22L0452

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	8.00	8.07	0.9	30.00
PFPEA	4.00	4.01	0.4	30.00
PFHXA	2.00	1.95	-2.5	30.00
PFHPA	2.00	2.06	2.8	30.00
PFOA	2.00	2.07	3.5	30.00
PFNA	2.00	2.01	0.4	30.00
PFDA	2.00	1.96	-2.0	30.00
PFUnA	2.00	2.34	17.0	30.00
PFDOA	2.00	2.09	4.4	30.00
PFTRDA	2.00	2.01	0.5	30.00
PFTEDA	2.00	2.20	10.0	30.00
PFBS	1.77	1.77	-0.3	30.00
PFPES	1.88	1.86	-0.8	30.00
PFHXS	1.83	1.73	-5.6	30.00
PFHPS	1.91	1.74	-8.8	30.00
PFOS	1.86	1.79	-3.7	30.00
PFNS	1.92	2.04	6.0	30.00
PFDS	1.93	1.91	-1.2	30.00
PFDOS	1.94	1.87	-3.8	30.00
4:2FTS	7.50	7.70	2.7	30.00
6:2FTS	7.60	7.97	4.9	30.00
8:2FTS	7.68	8.53	11.1	30.00
PFOSA	2.00	2.10	4.9	30.00
NMeFOSA	8.00	8.24	3.0	30.00
NEtFOSA	8.00	7.61	-4.9	30.00
NMeFOSAA	2.00	2.07	3.7	30.00
NEtFOSAA	2.00	1.65	-17.4	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2302001
Laboratory ID: SC00059-SCV1
Sequence: SC00059
Standard ID: 22L0452

NMeFOSE	8.00	7.51	-6.1	30.00
NEtFOSE	8.00	8.76	9.5	30.00
HFPO-DA	4.00	3.89	-2.9	30.00
ADONA	3.78	3.63	-4.0	30.00
PFEESA	3.56	3.70	3.9	30.00
PFMPA	4.00	4.04	1.1	30.00
PFMBA	4.00	3.98	-0.4	30.00
NFDHA	4.00	4.01	0.2	30.00
9CL-PF3ONS	3.74	3.66	-2.0	30.00
11CL-PF3OUDS	3.78	3.97	4.9	30.00
3:3FTCA	8.00	7.16	-10.5	30.00
5:3FTCA	8.00	8.07	0.8	30.00
7:3FTCA	8.00	8.08	1.0	30.00
13C4-PFBA	8.00	7.82	-2.3	30.00
13C5-PFPEA	4.00	4.24	6.1	30.00
13C5-PFHXA	2.00	2.04	2.2	30.00
13C4-PFHPA	2.00	2.06	3.1	30.00
13C8-PFOA	2.00	1.87	-6.4	30.00
13C9-PFNA	1.00	1.03	3.0	30.00
13C6-PFDA	1.00	1.11	11.0	30.00
13C7-PFUnA	1.00	1.09	9.0	30.00
13C2-PFDOA	1.00	1.07	6.5	30.00
13C2-PFTEDA	1.00	1.10	10.3	30.00
13C3-PFBS	2.00	2.14	7.2	30.00
13C3-PFHXS	2.00	2.06	3.1	30.00
13C8-PFOS	2.00	2.04	2.0	30.00
13C2-4:2FTS	4.00	4.17	4.3	30.00
13C2-6:2FTS	4.00	4.17	4.2	30.00
13C2-8:2FTS	4.00	3.89	-2.9	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2302001
Laboratory ID: SC00059-SCV1
Sequence: SC00059
Standard ID: 22L0452

13C8-PFOSA	2.00	2.04	2.2	30.00
D5-NETFOSA	2.00	2.06	2.9	30.00
D3-NMEFOSA	2.00	1.96	-2.2	30.00
D3-NMEFOSAA	4.00	4.01	0.3	30.00
D5-NETFOSAA	4.00	4.97	24.2	30.00
D7-NMEFOSE	20.0	21.7	8.5	30.00
D9-NETFOSE	20.0	19.8	-1.1	30.00
13C3-HFPO-DA	8.00	8.39	4.8	30.00

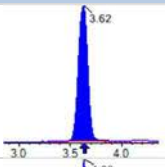
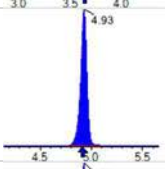
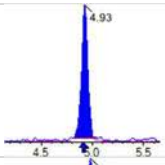
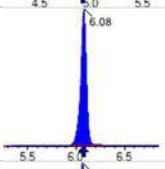
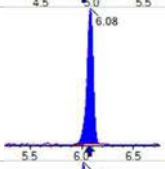
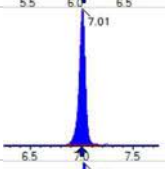
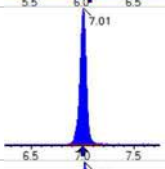
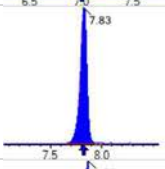
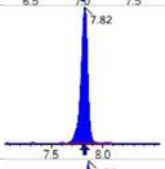
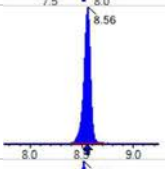
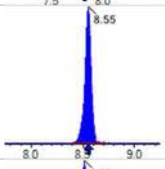
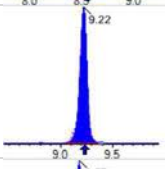
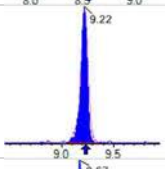
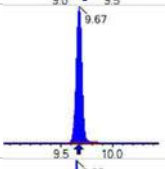
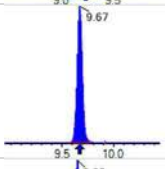
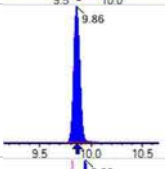
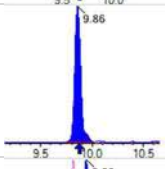
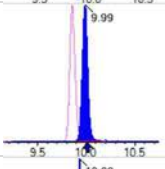
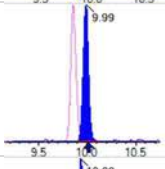
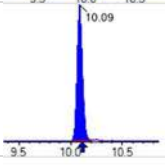
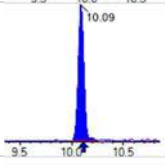
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (10)
Acquired: 2023/01/05 - 20:16

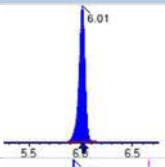
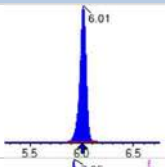
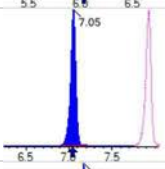
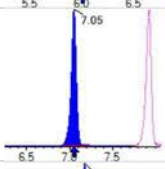
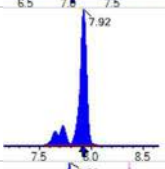
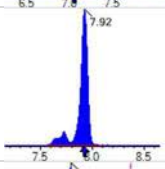
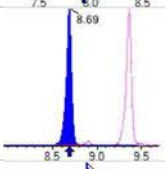
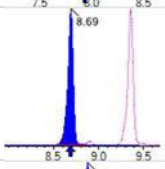
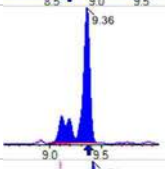
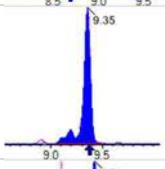
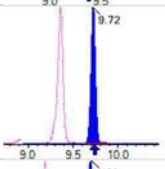
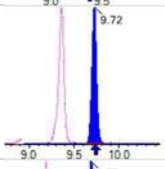
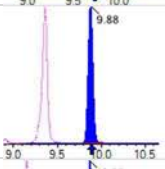
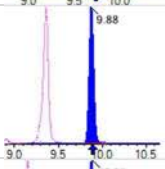
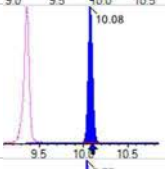
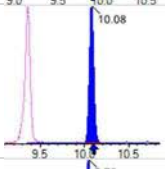
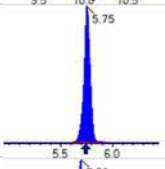
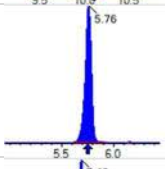
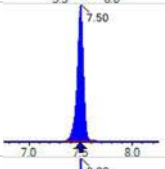
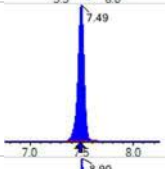
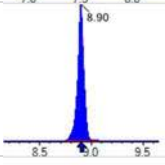
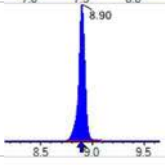
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 1193507	(3.62 , 1.00) (0.00 , N/A , 0.0)	447.5	N/A 0.0 0.0	8.0702 [8.0000]	100.9%			
PFPeA	(263.0 / 219.0) 920720 (263.0 / 69.0) 10262	(4.93 , 1.00) (0.00 , N/A , 0.1)	535.3 155.5	0.0111 91.8 91.8	4.0143 [4.0000]	100.4%			
PFHxA	(313.0 / 269.0) 581020 (313.0 / 119.0) 63162	(6.08 , 1.00) (0.00 , N/A , -0.1)	462.2 277.4	0.1087 108.9 108.9	1.9491 [2.0000]	97.5%			
PFHpA	(363.0 / 319.0) 576990 (363.0 / 169.0) 179689	(7.01 , 1.00) (0.00 , N/A , 0.2)	567.0 409.9	0.3114 104.5 104.5	2.0569 [2.0000]	102.8%			
PFOA	(413.0 / 369.0) 658790 (413.0 / 169.0) 225472	(7.83 , 1.00) (0.01 , N/A , 0.2)	572.5 477.4	0.3423 103.3 103.3	2.0707 [2.0000]	103.5%			
PFNA	(463.0 / 419.0) 562849 (463.0 / 169.0) 114742	(8.56 , 1.00) (0.00 , N/A , 0.2)	566.6 566.2	0.2039 88.8 88.8	2.0077 [2.0000]	100.4%			
PFDA	(513.0 / 469.0) 717800 (513.0 / 169.0) 76395	(9.22 , 1.00) (0.00 , N/A , 0.1)	434.4 221.8	0.1064 111.4 111.4	1.9594 [2.0000]	98.0%			
PFUnA	(563.0 / 519.0) 965437 (563.0 / 169.0) 88712	(9.67 , 1.00) (0.00 , N/A , 0.2)	507.9 1838.9	0.0919 91.9 91.9	2.3393 [2.0000]	117.0%			
PFDoA	(613.0 / 569.0) 867667 (613.0 / 169.0) 94565	(9.86 , 1.00) (0.00 , N/A , 0.0)	822.2 223.9	0.1090 88.8 88.8	2.0871 [2.0000]	104.4%			
PFTrDA	(663.0 / 619.0) 793765 (663.0 / 169.0) 169863	(9.99 , 1.01) (N/A , -0.01 , 0.1)	403.4 252.2	0.2140 109.5 109.5	2.0104 [2.0000]	100.5%			
PFTeDA	(713.0 / 669.0) 739865 (713.0 / 169.0) 132923	(10.09 , 1.00) (0.00 , N/A , -0.3)	440.1 238.1	0.1797 94.4 94.4	2.1996 [2.0000]	110.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (10)
Acquired: 2023/01/05 - 20:16

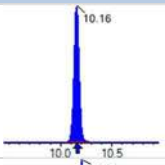
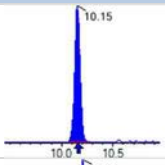
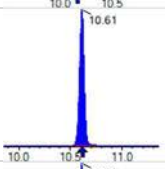
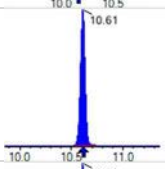
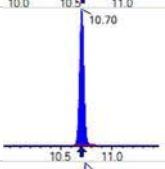
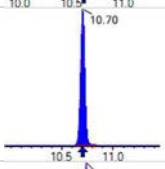
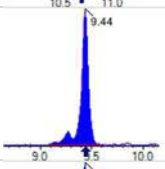
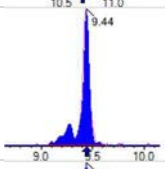
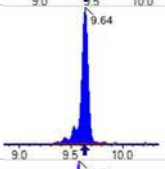
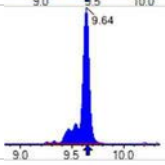
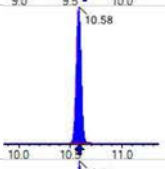
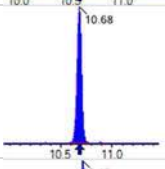
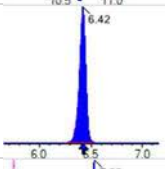
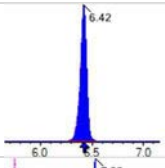
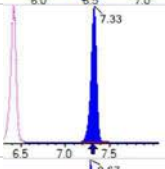
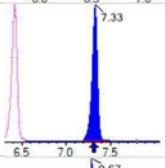
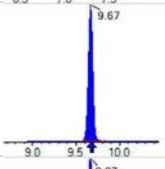
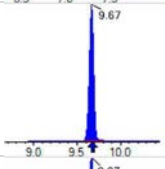
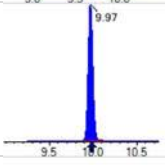
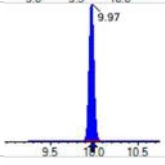
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 947210 (299.0 / 99.0) 587055	(6.01 , 1.00) (0.00 , N/A , 0.0)	639.6 541.8	0.6198 95.1 95.1	1.7650 [1.7695]	99.7%			
PFPeS	(349.0 / 80.0) 1651987 (349.0 / 99.0) 612256	(7.05 , 0.89) (N/A , -0.01 , 0.1)	620.2 580.8	0.3706 100.8 100.8	1.8649 [1.8768]	99.4%			
PFHxS	(399.0 / 80.0) 1411225 (399.0 / 99.0) 484730	(7.92 , 1.00) (0.00 , N/A , 0.1)	582.0 727.6	0.3435 99.6 99.6	1.7284 [1.8220]	94.9%			
PFHpS	(449.0 / 80.0) 1184951 (449.0 / 99.0) 367233	(8.69 , 0.93) (N/A , -0.01 , -0.2)	590.0 544.7	0.3099 110.8 110.8	1.7414 [1.9028]	91.5%			
PFOS	(499.0 / 80.0) 1517009 (499.0 / 99.0) 358182	(9.36 , 1.00) (0.00 , N/A , 0.4)	217.8 485.0	0.2361 105.1 105.1	1.7911 [1.8550]	96.6%			
PFNS	(549.0 / 80.0) 1867056 (549.0 / 99.0) 430333	(9.72 , 1.04) (N/A , 0.00 , 0.0)	735.9 892.8	0.2305 91.2 91.2	2.0353 [1.9198]	106.0%			
PFDS	(599.0 / 80.0) 1900191 (599.0 / 99.0) 425496	(9.88 , 1.06) (N/A , 0.00 , 0.1)	964.6 680.0	0.2239 96.6 96.6	1.9066 [1.9262]	99.0%			
PFDoS	(699.0 / 80.0) 782677 (699.0 / 99.0) 195127	(10.08 , 1.08) (N/A , -0.01 , -0.2)	773.9 308.6	0.2493 107.4 107.4	1.8655 [1.9391]	96.2%			
4:2FTS	(327.0 / 307.0) 3723062 (327.0 / 81.0) 2206743	(5.75 , 1.00) (0.00 , N/A , -0.3)	556.1 498.1	0.5927 108.0 108.0	7.7028 [7.4762]	103.0%			
6:2FTS	(427.0 / 407.0) 2496581 (427.0 / 81.0) 1784251	(7.50 , 1.00) (0.00 , N/A , 0.2)	700.5 750.2	0.7147 98.4 98.4	7.9742 [7.5923]	105.0%			
8:2FTS	(527.0 / 507.0) 2391877 (527.0 / 81.0) 1449406	(8.90 , 1.00) (0.00 , N/A , -0.1)	423.2 673.2	0.6060 90.8 90.8	8.5303 [7.6663]	111.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (10)
Acquired: 2023/01/05 - 20:16

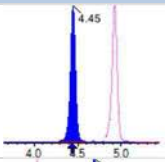
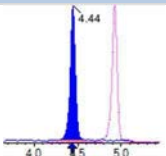
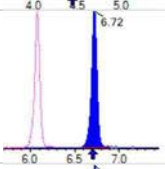
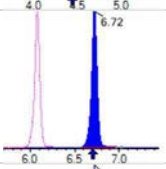
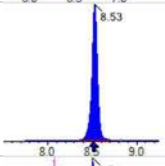
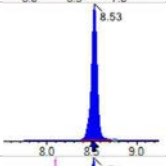
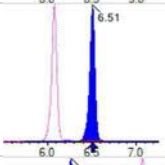
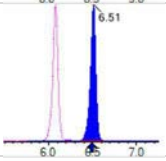
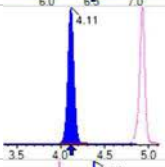
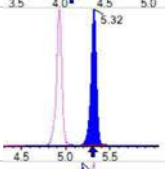
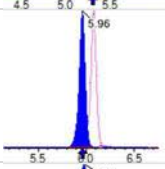
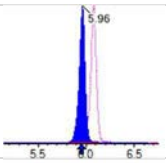
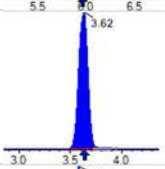
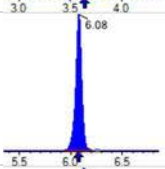
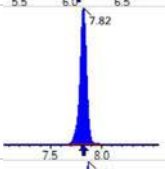
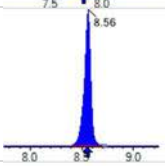
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 1834198 (498.0 / 478.0) 38088	(10.16 , 1.00) (0.00 , N/A , 0.1)	890.4 226.6	0.0208 87.6 87.6	2.0976 [2.0000]	104.9%			
NMeFOSA	(512.0 / 219.0) 1261082 (512.0 / 169.0) 860554	(10.61 , 1.00) (0.00 , N/A , 0.0)	1008.1 1104.5	0.6824 95.2 95.2	8.2433 [8.0000]	103.0%			
NEtFOSA	(526.0 / 219.0) 1217446 (526.0 / 169.0) 1336797	(10.70 , 1.00) (0.00 , N/A , 0.0)	1310.1 1570.9	1.0980 102.0 102.0	7.6109 [8.0000]	95.1%			
NMeFOSAA	(570.0 / 419.0) 465357 (570.0 / 483.0) 242729	(9.44 , 1.00) (0.01 , N/A , -0.1)	368.6 334.1	0.5216 109.3 109.3	2.0731 [2.0000]	103.7%			
NEtFOSAA	(584.0 / 419.0) 383295 (584.0 / 526.0) 263053	(9.64 , 1.00) (0.00 , N/A , -0.1)	396.5 344.0	0.6863 108.0 108.0	1.6522 [2.0000]	82.6%			
NMeFOSE	(616.0 / 59.0) 278883	(10.58 , 1.00) (0.01 , N/A , 0.0)	1314.2	N/A 0.0 0.0	7.5142 [8.0000]	93.9%			
NEtFOSE	(630.0 / 59.0) 57498	(10.68 , 1.00) (0.01 , N/A , 0.0)	838.2	N/A 0.0 0.0	8.7635 [8.0000]	109.5%			
HFPO-DA	(285.0 / 169.0) 402335 (285.0 / 185.0) 1333626	(6.42 , 1.00) (0.00 , N/A , 0.1)	558.5 588.0	3.3147 102.9 102.9	3.8853 [4.0000]	97.1%			
ADONA	(377.0 / 85.0) 2012614 (377.0 / 251.0) 263033	(7.33 , 1.14) (N/A , -0.01 , 0.0)	572.2 463.0	0.1307 104.6 104.6	3.6286 [3.7708]	96.2%			
9Cl-Pf3ONS	(531.0 / 351.0) 5551565 (533.0 / 353.0) 1856431	(9.67 , 1.51) (N/A , 0.00 , 0.0)	748.0 1114.0	0.3344 110.4 110.4	3.6641 [3.7330]	98.2%			
11Cl-PF3OUDS	(631.0 / 451.0) 2913629 (633.0 / 453.0) 997576	(9.97 , 1.55) (N/A , -0.01 , -0.1)	985.6 1092.8	0.3424 119.1 119.1	3.9654 [3.7728]	105.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (10)
Acquired: 2023/01/05 - 20:16

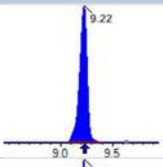
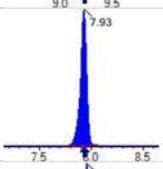
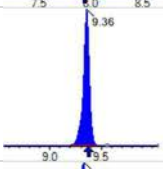
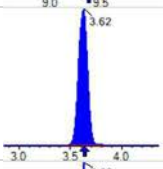
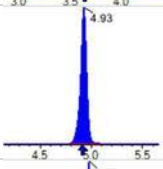
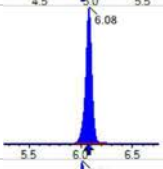
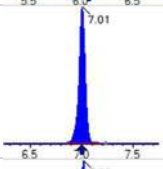
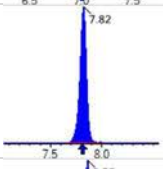
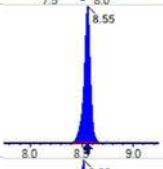
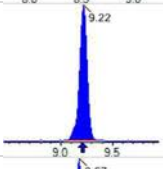
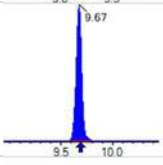
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 48107 (241.0 / 117.0) 79811	(4.45 , 0.90) (N/A , 0.01 , 0.1)	433.3 281.5	1.6590 106.3 106.3	7.1568 [8.0000]	89.5%			
5:3FTCA	(341.0 / 236.7) 374235 (341.0 / 217.0) 633860	(6.72 , 1.11) (N/A , 0.00 , -0.1)	412.4 442.1	1.6937 91.2 91.2	8.0670 [8.0000]	100.8%			
7:3FTCA	(441.0 / 317.0) 526527 (441.0 / 337.0) 431688	(8.53 , 1.40) (N/A , -0.01 , 0.0)	464.3 493.0	0.8199 102.2 102.2	8.0760 [8.0000]	101.0%			
PFEESA	(315.0 / 135.0) 1059224 (315.0 / 83.0) 331081	(6.51 , 1.07) (N/A , 0.00 , -0.1)	652.2 586.7	0.3126 99.3 99.3	3.6987 [3.5698]	103.6%			
PFMPA	(229.0 / 85.0) 233103	(4.11 , 0.83) (N/A , 0.00 , 0.0)	907.9	N/A 0.0 0.0	4.0439 [4.0000]	101.1%			
PFMBA	(279.0 / 85.0) 691163	(5.32 , 1.08) (N/A , 0.00 , 0.0)	768.7	N/A 0.0 0.0	3.9836 [4.0000]	99.6%			
NFDHA	(295.0 / 201.0) 533864 (295.0 / 85.0) 511650	(5.96 , 0.98) (N/A , 0.00 , 0.0)	488.2 537.2	0.9584 98.8 98.8	4.0095 [4.0000]	100.2%			
13C3_PFBA_IIS	(216.0 / 172.0) 165547	(3.62 , N/A) (N/A , 0.00 , N/A)	514.6	N/A	0.9794 [1.0000]	97.9% { 93.7% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 283723	(6.08 , N/A) (N/A , -0.01 , N/A)	481.3	N/A	0.9499 [1.0000]	95.0% { 87.1% }			
13C4_PFOA_IIS	(417.0 / 372.0) 325005	(7.82 , N/A) (N/A , -0.02 , N/A)	730.4	N/A	0.9824 [1.0000]	98.2% { 90.1% }			
13C5_PFNA_IIS	(468.0 / 423.0) 280556	(8.56 , N/A) (N/A , -0.01 , N/A)	373.5	N/A	1.0063 [1.0000]	100.6% { 93.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (10)
Acquired: 2023/01/05 - 20:16

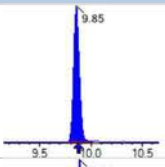
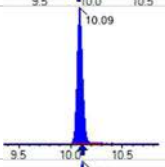
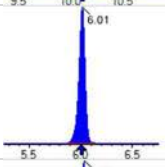
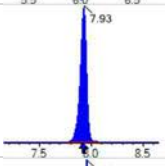
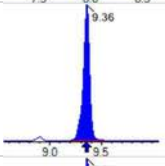
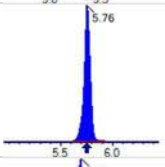
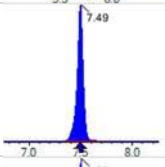
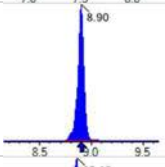
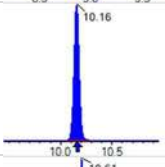
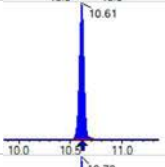
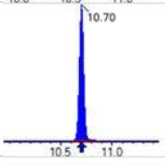
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 272148	(9.22 , N/A) (N/A , -0.01 , N/A)	337.6	N/A	0.8703 [1.0000]	87.0% { 69.5% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 568351	(7.93 , N/A) (N/A , -0.01 , N/A)	891.9	N/A	0.9677 [1.0000]	96.8% { 99.4% }			
13C4_PFOS_IIS	(503.0 / 79.9) 564008	(9.36 , N/A) (N/A , -0.01 , N/A)	514.7	N/A	0.9554 [1.0000]	95.5% { 87.2% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1289292	(3.62 , N/A) (N/A , 0.00 , N/A)	676.6	N/A	7.8189 [8.0000]	97.7% { 90.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 974277	(4.93 , N/A) (N/A , 0.00 , N/A)	537.2	N/A	4.2446 [4.0000]	106.1% { 96.5% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 607002	(6.08 , N/A) (N/A , 0.00 , N/A)	483.0	N/A	2.0436 [2.0000]	102.2% { 92.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 548456	(7.01 , N/A) (N/A , -0.01 , N/A)	688.1	N/A	2.0620 [2.0000]	103.1% { 98.6% }			
13C8_PFOA_EIS	(421.0 / 376.0) 602993	(7.82 , N/A) (N/A , -0.01 , N/A)	654.1	N/A	1.8727 [2.0000]	93.6% { 91.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 286997	(8.55 , N/A) (N/A , -0.01 , N/A)	605.6	N/A	1.0303 [1.0000]	103.0% { 97.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 354407	(9.22 , N/A) (N/A , -0.01 , N/A)	304.0	N/A	1.1099 [1.0000]	111.0% { 81.4% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 460453	(9.67 , N/A) (N/A , 0.00 , N/A)	494.8	N/A	1.0901 [1.0000]	109.0% { 94.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (10)
Acquired: 2023/01/05 - 20:16

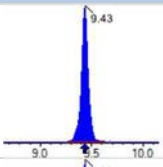
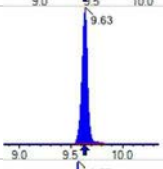
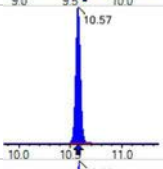
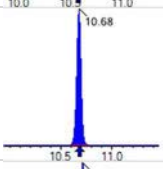
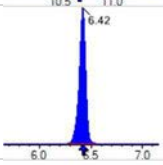
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 455693	(9.85 , N/A) (N/A , -0.01 , N/A)	385.7	N/A	1.0651 [1.0000]	106.5% { 86.6% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 337629	(10.09 , N/A) (N/A , -0.01 , N/A)	689.1	N/A	1.1030 [1.0000]	110.3% { 98.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1696110	(6.01 , N/A) (N/A , 0.00 , N/A)	749.4	N/A	2.1443 [2.0000]	107.2% { 102.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 970120	(7.93 , N/A) (N/A , -0.01 , N/A)	707.2	N/A	2.0624 [2.0000]	103.1% { 93.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1412432	(9.36 , N/A) (N/A , 0.00 , N/A)	312.6	N/A	2.0393 [2.0000]	102.0% { 95.4% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 559239	(5.76 , N/A) (N/A , 0.00 , N/A)	551.3	N/A	4.1717 [4.0000]	104.3% { 99.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 779229	(7.49 , N/A) (N/A , -0.01 , N/A)	632.3	N/A	4.1680 [4.0000]	104.2% { 95.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 741507	(8.90 , N/A) (N/A , -0.01 , N/A)	543.8	N/A	3.8857 [4.0000]	97.1% { 92.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1578320	(10.16 , N/A) (N/A , -0.01 , N/A)	870.7	N/A	2.0447 [2.0000]	102.2% { 87.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 333552	(10.61 , N/A) (N/A , 0.00 , N/A)	1029.9	N/A	1.9556 [2.0000]	97.8% { 96.7% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 319317	(10.70 , N/A) (N/A , 0.00 , N/A)	912.4	N/A	2.0580 [2.0000]	102.9% { 94.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (10)
Acquired: 2023/01/05 - 20:16

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 963931	(9.43 , N/A) (N/A , 0.00 , N/A)	260.0	N/A	4.0112 [4.0000]	100.3% { 98.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1035393	(9.63 , N/A) (N/A , 0.00 , N/A)	119.9	N/A	4.9663 [4.0000]	124.2% { 109.5% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 596298	(10.57 , N/A) (N/A , 0.00 , N/A)	730.0	N/A	21.7018 [20.0000]	108.5% { 101.5% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 247851	(10.68 , N/A) (N/A , 0.00 , N/A)	1272.0	N/A	19.7877 [20.0000]	98.9% { 84.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1372285	(6.42 , N/A) (N/A , 0.00 , N/A)	587.4	N/A	8.3857 [8.0000]	104.8% { 94.0% }			

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
Calibration: 2302001
Laboratory ID: SC00069-LCV1
Sequence: SC00069
Standard ID: 22L0444

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	0.400	0.318	-20.6	30.00
PFPEA	0.200	0.186	-6.9	30.00
PFHXA	0.100	0.111	10.6	30.00
PFHPA	0.100	0.0777	-22.3	30.00
PFOA	0.100	0.0963	-3.7	30.00
PFNA	0.100	0.119	18.8	30.00
PFDA	0.100	0.0996	-0.4	30.00
PFUnA	0.100	0.114	13.5	30.00
PFDOA	0.100	0.0873	-12.7	30.00
PFTRDA	0.100	0.0904	-9.6	30.00
PFTEDA	0.100	0.122	21.9	30.00
PFBS	0.0885	0.0870	-1.7	30.00
PFPES	0.0940	0.0823	-12.4	30.00
PFHXS	0.0915	0.0895	-2.2	30.00
PFHPS	0.0955	0.0929	-2.8	30.00
PFOS	0.0930	0.120	28.7	30.00
PFNS	0.0960	0.0939	-2.2	30.00
PFDS	0.0965	0.119	23.7	30.00
PFDOS	0.0970	0.116	19.8	30.00
4:2FTS	0.375	0.368	-1.9	30.00
6:2FTS	0.380	0.399	5.1	30.00
8:2FTS	0.384	0.383	-0.2	30.00
PFOSA	0.100	0.102	2.3	30.00
NMeFOSA	0.400	0.406	1.5	30.00
NEtFOSA	0.400	0.364	-9.0	30.00
NMeFOSAA	0.100	0.0929	-7.1	30.00
NEtFOSAA	0.100	0.0829	-17.1	30.00
NMeFOSE	0.400	0.407	1.7	30.00

LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2302001
Laboratory ID: SC00069-LCV1
Sequence: SC00069
Standard ID: 22L0444

NEtFOSE	0.400	0.481	20.2	30.00
HFPO-DA	0.200	0.202	0.9	30.00
ADONA	0.189	0.178	-6.0	30.00
PFEESA	0.178	0.181	1.9	30.00
PFMPA	0.200	0.181	-9.5	30.00
PFMBA	0.200	0.204	1.9	30.00
NFDHA	0.200	0.174	-12.9	30.00
9CL-PF3ONS	0.187	0.179	-4.3	30.00
11CL-PF3OUDS	0.189	0.232	23.0	30.00
3:3FTCA	0.400	0.319	-20.4	30.00
5:3FTCA	0.400	0.369	-7.9	30.00
7:3FTCA	0.400	0.395	-1.3	30.00

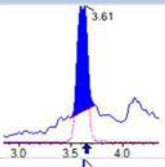
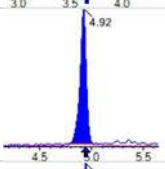
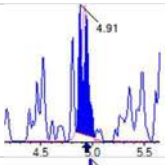
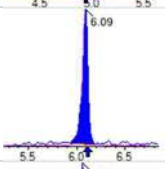
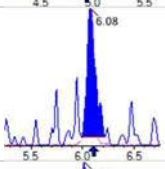
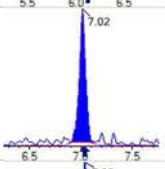
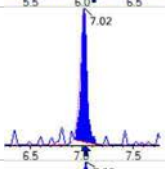
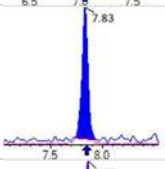
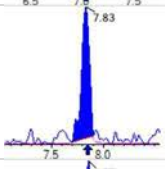
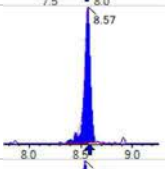
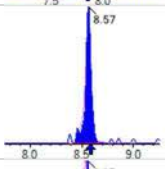
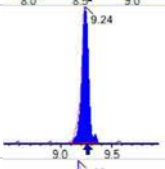
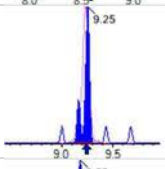
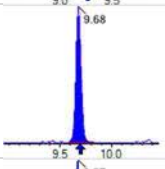
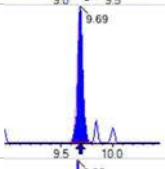
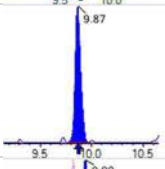
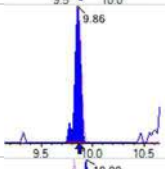
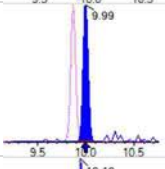
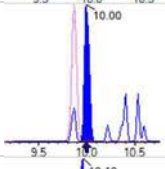
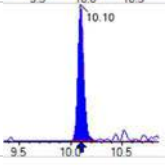
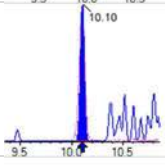
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (55)
Acquired: 2023/01/06 - 17:37

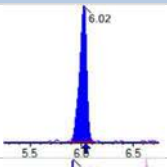
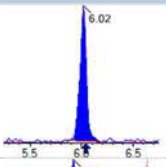
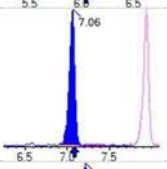
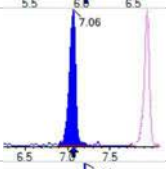
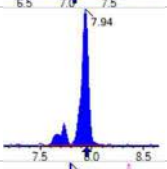
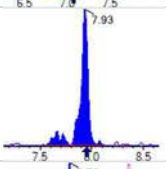
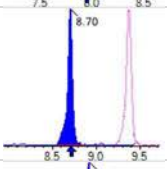
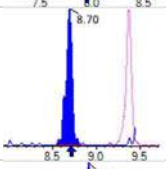
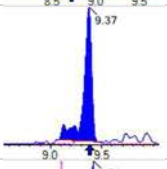
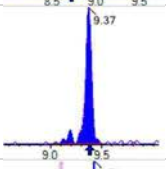
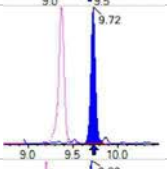
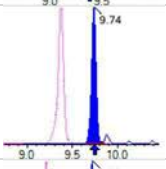
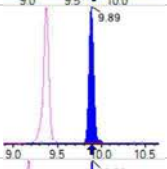
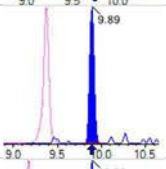
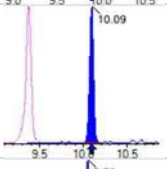
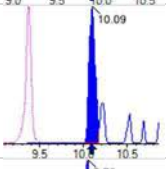
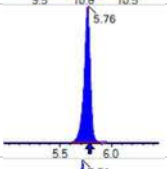
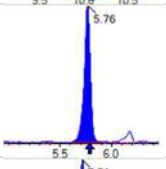
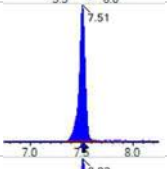
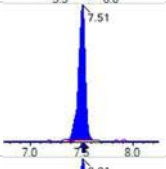
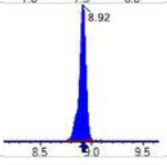
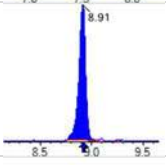
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 43458	(3.61 , 1.00) (0.00 , N/A , 0.0)	34.5	N/A 0.0 0.0	0.3175 [0.4000]	79.4%			
PFPeA	(263.0 / 219.0) 38678 (263.0 / 69.0) 517	(4.92 , 1.00) (0.00 , N/A , 0.7)	170.0 10.8	0.0134 110.1 107.6	0.1862 [0.2000]	93.1%			
PFHxA	(313.0 / 269.0) 31637 (313.0 / 119.0) 2842	(6.09 , 1.00) (0.01 , N/A , 1.0)	125.7 16.8	0.0898 90.0 86.2	0.1106 [0.1000]	110.6%			
PFHpA	(363.0 / 319.0) 20624 (363.0 / 169.0) 6836	(7.02 , 1.00) (0.00 , N/A , -0.4)	76.2 46.4	0.3314 111.2 111.7	0.0777 [0.1000]	77.7%			
PFOA	(413.0 / 369.0) 32824 (413.0 / 169.0) 12232	(7.83 , 1.00) (0.00 , N/A , 0.2)	90.4 46.4	0.3726 112.5 113.3	0.0963 [0.1000]	96.3%			
PFNA	(463.0 / 419.0) 30008 (463.0 / 169.0) 5198	(8.57 , 1.00) (0.00 , N/A , 0.2)	166.6 92.0	0.1732 75.5 76.1	0.1188 [0.1000]	118.8%			
PFDA	(513.0 / 469.0) 36462 (513.0 / 169.0) 3172	(9.24 , 1.00) (0.01 , N/A , -0.8)	237.2 96.3	0.0870 91.1 98.6	0.0996 [0.1000]	99.6%			
PFUnA	(563.0 / 519.0) 51309 (563.0 / 169.0) 8204	(9.68 , 1.00) (-0.01 , N/A , -0.6)	226.5 104.6	0.1599 159.9 169.0	0.1135 [0.1000]	113.5%			IR2,
PFDoA	(613.0 / 569.0) 35800 (613.0 / 169.0) 7096	(9.87 , 1.00) (0.00 , N/A , 0.5)	170.6 67.3	0.1982 161.6 151.1	0.0873 [0.1000]	87.3%			IR2,
PFTrDA	(663.0 / 619.0) 35216 (663.0 / 169.0) 4134	(9.99 , 1.01) (N/A , 0.00 , -0.1)	95.4 27.4	0.1174 60.1 46.2	0.0904 [0.1000]	90.4%			IR1,
PFTeDA	(713.0 / 669.0) 33724 (713.0 / 169.0) 4222	(10.10 , 1.00) (-0.01 , N/A , -0.5)	87.6 20.2	0.1252 65.8 56.8	0.1219 [0.1000]	121.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (55)
Acquired: 2023/01/06 - 17:37

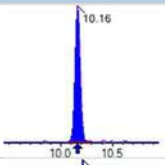
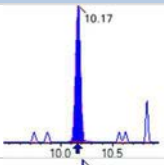
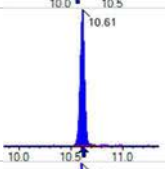
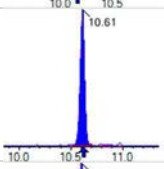
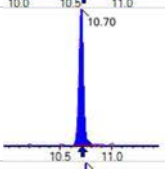
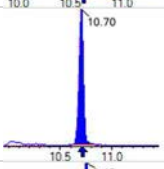
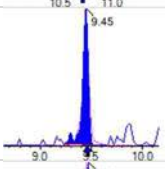
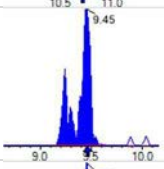
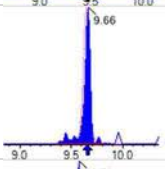
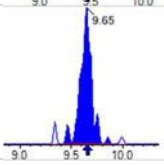
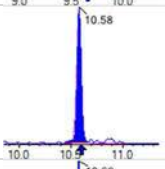
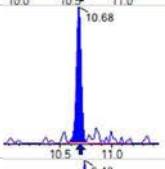
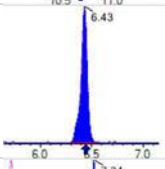
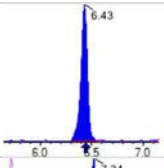
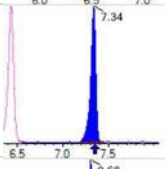
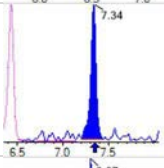
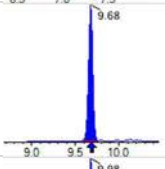
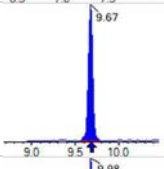
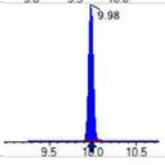
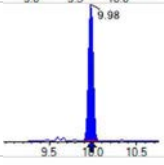
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 44699 (299.0 / 99.0) 32243	(6.02 , 1.00) (0.00 , N/A , 0.1)	262.8 151.1	0.7213 110.7 114.6	0.0870 [0.0885]	98.4%			
PFPeS	(349.0 / 80.0) 69689 (349.0 / 99.0) 31921	(7.06 , 0.89) (N/A , -0.01 , -0.1)	227.4 141.2	0.4580 124.5 117.2	0.0824 [0.0938]	87.8%			
PFHxS	(399.0 / 80.0) 69826 (399.0 / 99.0) 24258	(7.94 , 1.00) (0.00 , N/A , 0.2)	293.3 11094.4	0.3474 100.8 95.9	0.0895 [0.0911]	98.3%			
PFHpS	(449.0 / 80.0) 59099 (449.0 / 99.0) 15822	(8.70 , 0.93) (N/A , 0.00 , 0.4)	257.6 103.5	0.2677 95.7 90.4	0.0929 [0.0951]	97.6%			
PFOS	(499.0 / 80.0) 128213 (499.0 / 99.0) 45358	(9.37 , 1.00) (0.00 , N/A , -0.1)	76.3 362.6	0.3538 157.5 148.0	0.1197 [0.0927]	129.0%			IR2,MI4 ABK 1/8/23
PFNS	(549.0 / 80.0) 80585 (549.0 / 99.0) 25138	(9.72 , 1.04) (N/A , -0.01 , -0.7)	143.4 125.1	0.3119 123.5 142.1	0.0939 [0.0960]	97.9%			
PFDS	(599.0 / 80.0) 111300 (599.0 / 99.0) 30733	(9.89 , 1.05) (N/A , 0.00 , -0.4)	462.4 83.6	0.2761 119.2 125.4	0.1194 [0.0963]	124.0%			
PFDoS	(699.0 / 80.0) 45615 (699.0 / 99.0) 7836	(10.09 , 1.08) (N/A , 0.00 , -0.1)	197.6 32.0	0.1718 74.0 72.3	0.1162 [0.0970]	119.9%			
4:2FTS	(327.0 / 307.0) 193543 (327.0 / 81.0) 115810	(5.76 , 1.00) (0.00 , N/A , 0.0)	551.0 171.0	0.5984 109.0 101.8	0.3679 [0.3738]	98.4%			
6:2FTS	(427.0 / 407.0) 122889 (427.0 / 81.0) 88623	(7.51 , 1.00) (0.00 , N/A , 0.2)	449.4 295.4	0.7212 99.3 91.9	0.3994 [0.3796]	105.2%			
8:2FTS	(527.0 / 507.0) 134061 (527.0 / 81.0) 89268	(8.92 , 1.00) (0.01 , N/A , 0.3)	616.1 277.9	0.6659 99.8 129.4	0.3834 [0.3833]	100.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (55)
Acquired: 2023/01/06 - 17:37

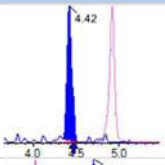
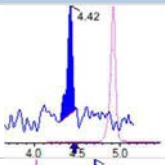
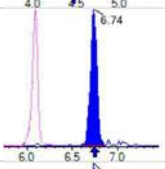
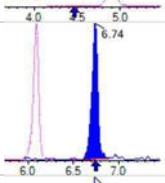
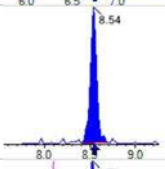
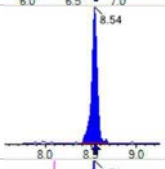
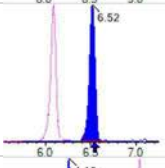
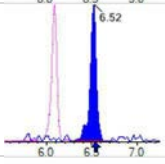
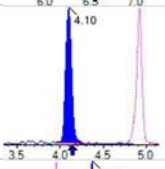
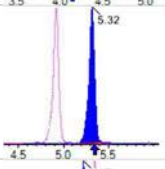
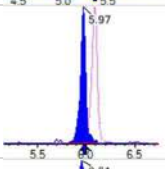
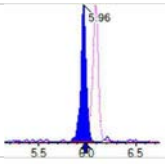
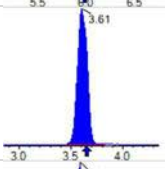
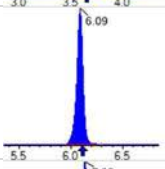
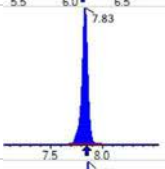
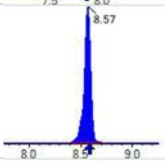
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 81100 (498.0 / 478.0) 3867	(10.16 , 1.00) (0.00 , N/A , -0.5)	352.2 53.2	0.0477 201.2 238.0	0.1023 [0.1000]	102.3%			
NMeFOSA	(512.0 / 219.0) 56285 (512.0 / 169.0) 39329	(10.61 , 1.00) (0.00 , N/A , 0.0)	490.2 416.8	0.6987 97.4 100.5	0.4061 [0.4000]	101.5%			
NEtFOSA	(526.0 / 219.0) 48001 (526.0 / 169.0) 50892	(10.70 , 1.00) (0.00 , N/A , -0.1)	370.9 285.0	1.0602 98.5 96.5	0.3640 [0.4000]	91.0%			
NMeFOSAA	(570.0 / 419.0) 24214 (570.0 / 483.0) 16190	(9.45 , 1.00) (0.00 , N/A , -0.3)	84.0 2615.5	0.6686 140.1 146.8	0.0929 [0.1000]	92.9%			
NEtFOSAA	(584.0 / 419.0) 19260 (584.0 / 526.0) 17730	(9.66 , 1.00) (0.02 , N/A , 0.7)	859.2 312.2	0.9205 144.8 164.8	0.0829 [0.1000]	82.9%			IR2,
NMeFOSE	(616.0 / 59.0) 14750	(10.58 , 1.00) (0.00 , N/A , 0.0)	147.5	N/A 0.0 0.0	0.4068 [0.4000]	101.7%			
NEtFOSE	(630.0 / 59.0) 3386	(10.68 , 1.00) (0.01 , N/A , 0.0)	57.8	N/A 0.0 0.0	0.4809 [0.4000]	120.2%			
HFPO-DA	(285.0 / 169.0) 21166 (285.0 / 185.0) 67185	(6.43 , 1.00) (0.00 , N/A , 0.0)	360.8 324.5	3.1742 98.5 89.5	0.2018 [0.2000]	100.9%			
ADONA	(377.0 / 85.0) 99814 (377.0 / 251.0) 13354	(7.34 , 1.14) (N/A , -0.01 , 0.0)	398.9 60.2	0.1338 107.0 98.1	0.1777 [0.1885]	94.2%			
9Cl-Pf3ONS	(531.0 / 351.0) 289175 (533.0 / 353.0) 87719	(9.68 , 1.51) (N/A , 0.00 , 0.1)	239.2 283.6	0.3033 100.1 84.4	0.1790 [0.1867]	95.9%			
11Cl-PF3OUDS	(631.0 / 451.0) 173013 (633.0 / 453.0) 52904	(9.98 , 1.55) (N/A , 0.00 , 0.0)	3367.6 258.9	0.3058 106.3 103.3	0.2325 [0.1886]	123.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (55)
Acquired: 2023/01/06 - 17:37

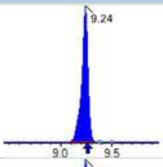
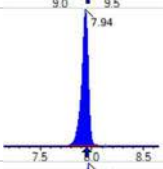
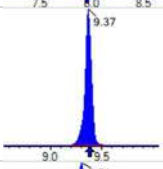
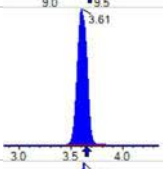
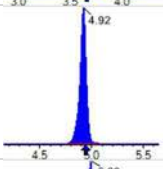
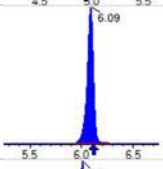
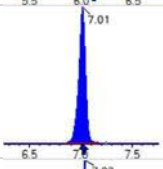
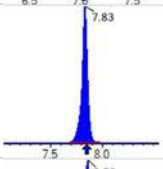
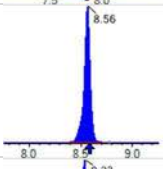
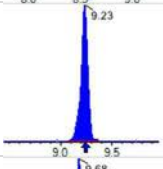
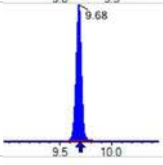
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 1939 (241.0 / 117.0) 3835	(4.42 , 0.90) (N/A , -0.04 , 0.0)	83.8 28.2	1.9777 126.8 112.4	0.3185 [0.4000]	79.6%			
5:3FTCA	(341.0 / 236.7) 16409 (341.0 / 217.0) 32149	(6.74 , 1.11) (N/A , -0.01 , -0.1)	156.4 155.7	1.9592 105.5 109.2	0.3686 [0.4000]	92.1%			
7:3FTCA	(441.0 / 317.0) 24708 (441.0 / 337.0) 17995	(8.54 , 1.40) (N/A , -0.01 , 0.0)	125.2 222.9	0.7283 90.8 93.8	0.3949 [0.4000]	98.7%			
PFEESA	(315.0 / 135.0) 49850 (315.0 / 83.0) 15799	(6.52 , 1.07) (N/A , -0.01 , -0.1)	287.1 70.7	0.3169 100.7 110.3	0.1814 [0.1785]	101.6%			
PFMPA	(229.0 / 85.0) 9446	(4.10 , 0.83) (N/A , -0.03 , 0.0)	214.5	N/A 0.0 0.0	0.1809 [0.2000]	90.5%			
PFMBA	(279.0 / 85.0) 32011	(5.32 , 1.08) (N/A , -0.02 , 0.0)	370.4	N/A 0.0 0.0	0.2037 [0.2000]	101.9%			
NFDHA	(295.0 / 201.0) 22255 (295.0 / 85.0) 22215	(5.97 , 0.98) (N/A , -0.01 , 0.5)	198.8 152.8	0.9982 102.9 98.2	0.1742 [0.2000]	87.1%			
13C3_PFBA_IIS	(216.0 / 172.0) 144227	(3.61 , N/A) (N/A , -0.04 , N/A)	510.2	N/A	0.8533 [1.0000]	85.3% { 87.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 258109	(6.09 , N/A) (N/A , -0.02 , N/A)	499.6	N/A	0.8642 [1.0000]	86.4% { 85.7% }			
13C4_PFOA_IIS	(417.0 / 372.0) 301640	(7.83 , N/A) (N/A , -0.02 , N/A)	613.9	N/A	0.9118 [1.0000]	91.2% { 108.6% }			
13C5_PFNA_IIS	(468.0 / 423.0) 251541	(8.57 , N/A) (N/A , -0.01 , N/A)	401.5	N/A	0.9022 [1.0000]	90.2% { 99.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (55)
Acquired: 2023/01/06 - 17:37

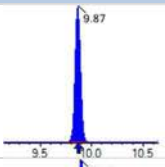
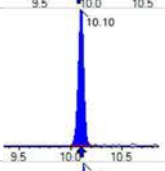
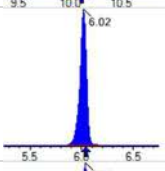
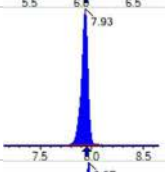
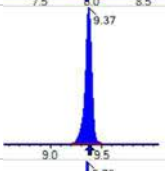
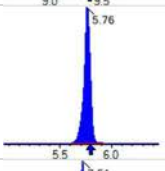
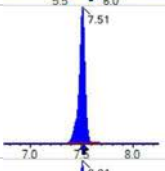
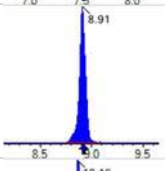
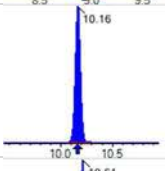
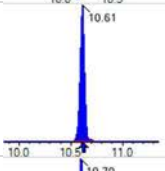
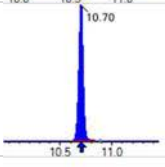
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 309204	(9.24 , N/A) (N/A , -0.01 , N/A)	509.6	N/A	0.9888 [1.0000]	98.9% { 108.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 519853	(7.94 , N/A) (N/A , -0.01 , N/A)	685.8	N/A	0.8852 [1.0000]	88.5% { 93.0% }			
13C4_PFOS_IIS	(503.0 / 79.9) 522349	(9.37 , N/A) (N/A , -0.02 , N/A)	642.0	N/A	0.8849 [1.0000]	88.5% { 109.1% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1193174	(3.61 , N/A) (N/A , -0.04 , N/A)	599.5	N/A	8.3056 [8.0000]	103.8% { 95.6% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 882427	(4.92 , N/A) (N/A , -0.02 , N/A)	569.3	N/A	4.2260 [4.0000]	105.6% { 104.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 582529	(6.09 , N/A) (N/A , -0.02 , N/A)	396.3	N/A	2.1558 [2.0000]	107.8% { 97.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 518937	(7.01 , N/A) (N/A , -0.01 , N/A)	488.9	N/A	2.1446 [2.0000]	107.2% { 101.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 646136	(7.83 , N/A) (N/A , -0.01 , N/A)	691.4	N/A	2.1621 [2.0000]	108.1% { 108.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 258484	(8.56 , N/A) (N/A , -0.01 , N/A)	621.5	N/A	1.0350 [1.0000]	103.5% { 107.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 354195	(9.23 , N/A) (N/A , -0.01 , N/A)	571.0	N/A	0.9763 [1.0000]	97.6% { 98.6% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 504200	(9.68 , N/A) (N/A , 0.00 , N/A)	459.5	N/A	1.0507 [1.0000]	105.1% { 124.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (55)
Acquired: 2023/01/06 - 17:37

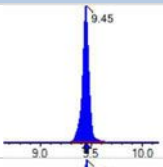
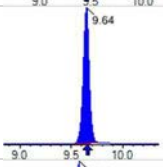
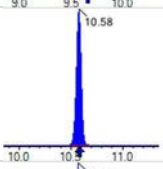
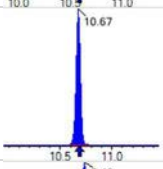
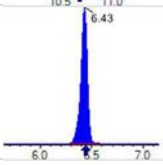
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 449675	(9.87 , N/A) (N/A , 0.00 , N/A)	722.9	N/A	0.9251 [1.0000]	92.5% { 106.8% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 277692	(10.10 , N/A) (N/A , 0.00 , N/A)	335.2	N/A	0.7985 [1.0000]	79.8% { 94.6% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1623145	(6.02 , N/A) (N/A , -0.02 , N/A)	542.1	N/A	2.2435 [2.0000]	112.2% { 101.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 926780	(7.93 , N/A) (N/A , -0.01 , N/A)	640.8	N/A	2.1541 [2.0000]	107.7% { 92.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1321000	(9.37 , N/A) (N/A , -0.01 , N/A)	754.9	N/A	2.0594 [2.0000]	103.0% { 109.6% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 608619	(5.76 , N/A) (N/A , -0.02 , N/A)	565.6	N/A	4.9636 [4.0000]	124.1% { 113.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 765872	(7.51 , N/A) (N/A , -0.01 , N/A)	570.2	N/A	4.4788 [4.0000]	112.0% { 121.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 924660	(8.91 , N/A) (N/A , -0.01 , N/A)	538.9	N/A	5.2975 [4.0000]	132.4% { 136.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1430533	(10.16 , N/A) (N/A , 0.00 , N/A)	681.3	N/A	2.0011 [2.0000]	100.1% { 96.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 302221	(10.61 , N/A) (N/A , 0.00 , N/A)	865.2	N/A	1.9133 [2.0000]	95.7% { 108.4% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 263213	(10.70 , N/A) (N/A , 0.00 , N/A)	36.5	N/A	1.8317 [2.0000]	91.6% { 106.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (55)
Acquired: 2023/01/06 - 17:37

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1119252	(9.45 , N/A) (N/A , -0.01 , N/A)	506.8	N/A	5.0290 [4.0000]	125.7% { 124.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1037275	(9.64 , N/A) (N/A , -0.01 , N/A)	142.8	N/A	5.3721 [4.0000]	134.3% { 142.5% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 582537	(10.58 , N/A) (N/A , -0.01 , N/A)	1291.3	N/A	22.8918 [20.0000]	114.5% { 108.7% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 265993	(10.67 , N/A) (N/A , 0.00 , N/A)	1691.2	N/A	22.9298 [20.0000]	114.6% { 129.9% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1389877	(6.43 , N/A) (N/A , -0.01 , N/A)	630.3	N/A	9.3360 [8.0000]	116.7% { 112.1% }			

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:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2302001
Standard ID:	22L0448	Sequence:	SC00069

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC00069-CCV1	PFBA	20.0	20.7	103	ng/mL	+/- 30.00%
	PFPEA	10.0	10.6	106	ng/mL	+/- 30.00%
	PFHXA	5.00	5.13	103	ng/mL	+/- 30.00%
	PFHPA	5.00	5.16	103	ng/mL	+/- 30.00%
	PFOA	5.00	4.93	98.5	ng/mL	+/- 30.00%
	PFNA	5.00	5.39	108	ng/mL	+/- 30.00%
	PFDA	5.00	4.83	96.6	ng/mL	+/- 30.00%
	PFUnA	5.00	5.44	109	ng/mL	+/- 30.00%
	PFDOA	5.00	5.64	113	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.81	96.2	ng/mL	+/- 30.00%
	PFTEDA	5.00	4.52	90.4	ng/mL	+/- 30.00%
	PFBS	4.42	4.43	100	ng/mL	+/- 30.00%
	PFPES	4.70	4.50	95.7	ng/mL	+/- 30.00%
	PFHXS	4.58	4.11	89.7	ng/mL	+/- 30.00%
	PFHPS	4.78	5.07	106	ng/mL	+/- 30.00%
	PFOS	4.65	4.78	103	ng/mL	+/- 30.00%
	PFNS	4.80	5.63	117	ng/mL	+/- 30.00%
	PFDS	4.82	5.76	120	ng/mL	+/- 30.00%
	PFDOS	4.85	5.99	123	ng/mL	+/- 30.00%
	4:2FTS	18.8	20.3	108	ng/mL	+/- 30.00%
	6:2FTS	19.0	20.7	109	ng/mL	+/- 30.00%
	8:2FTS	19.2	23.2	121	ng/mL	+/- 30.00%
	PFOSA	5.00	5.32	106	ng/mL	+/- 30.00%
	NMeFOSA	20.0	21.5	107	ng/mL	+/- 30.00%
	NEtFOSA	20.0	20.8	104	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	5.67	113	ng/mL	+/- 30.00%
	NEtFOSAA	**5.00**	**6.96**	**139**	**ng/mL**	+/- 30.00%
	NMeFOSE	20.0	19.5	97.5	ng/mL	+/- 30.00%
	NEtFOSE	20.0	24.7	123	ng/mL	+/- 30.00%
	HFPO-DA	10.0	9.56	95.6	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2302001
Standard ID:	22L0448	Sequence:	SC00069

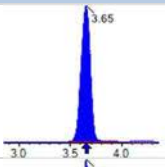
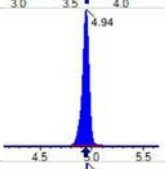
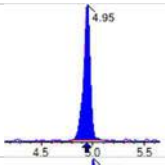
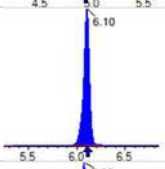
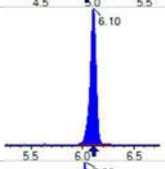
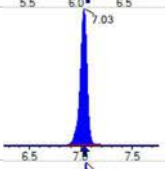
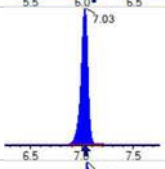
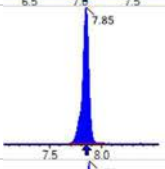
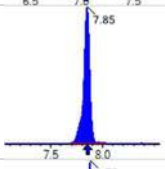
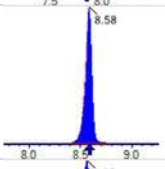
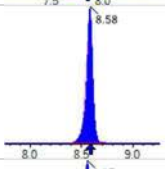
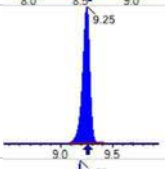
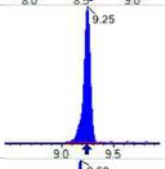
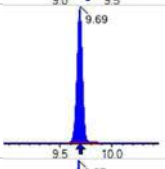
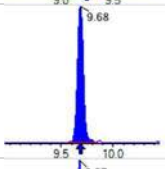
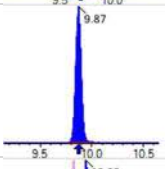
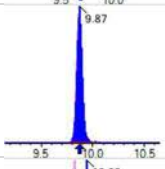
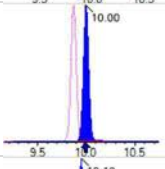
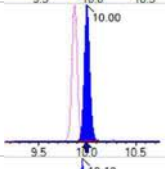
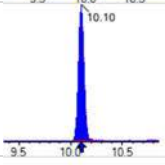
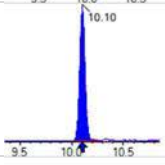
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC00069-CCV1	ADONA	9.45	9.76	103	ng/mL	+/- 30.00%
	PFEESA	8.90	9.70	109	ng/mL	+/- 30.00%
	PFMPA	10.0	10.4	104	ng/mL	+/- 30.00%
	PFMBA	10.0	10.5	105	ng/mL	+/- 30.00%
	NFDHA	10.0	8.55	85.5	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	9.88	106	ng/mL	+/- 30.00%
	11CL-PF3OUDS	**9.45**	**12.4**	**131**	**ng/mL**	+/- 30.00%
	3:3FTCA	20.0	18.2	91.0	ng/mL	+/- 30.00%
	5:3FTCA	20.0	18.7	93.5	ng/mL	+/- 30.00%
	7:3FTCA	20.0	19.8	99.2	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (3)
Acquired: 2023/01/06 - 17:50

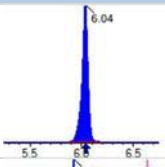
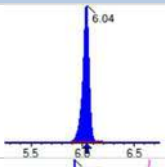
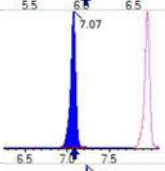
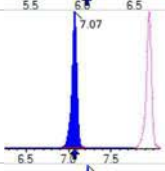
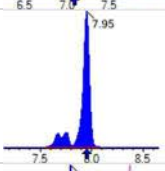
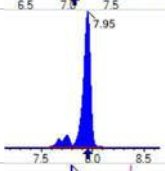
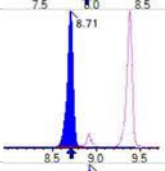
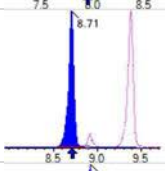
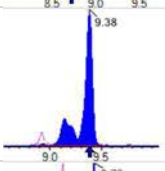
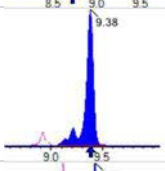
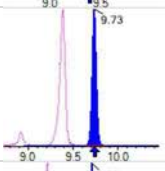
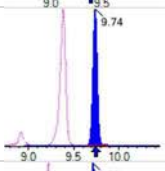
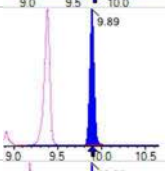
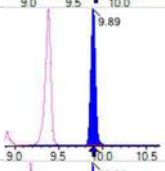
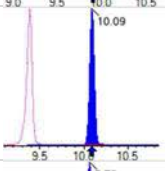
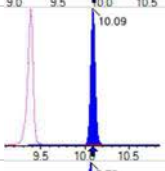
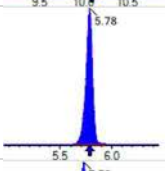
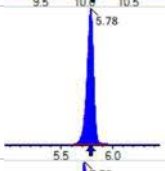
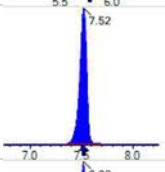
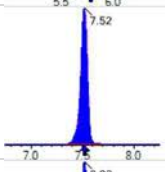
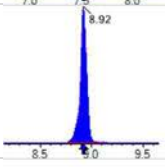
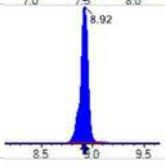
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2955314	(3.65 , 1.00) (0.00 , N/A , 0.0)	52.4	N/A 0.0 0.0	20.6525 [20.0000]	103.3%			
PFPeA	(263.0 / 219.0) 2103160 (263.0 / 69.0) 26130	(4.94 , 1.00) (0.00 , N/A , -0.2)	599.6 274.5	0.0124 102.3 100.0	10.6093 [10.0000]	106.1%			
PFHxA	(313.0 / 269.0) 1499902 (313.0 / 119.0) 156262	(6.10 , 1.00) (0.00 , N/A , 0.0)	524.9 402.1	0.1042 104.4 100.0	5.1326 [5.0000]	102.7%			
PFHpA	(363.0 / 319.0) 1355227 (363.0 / 169.0) 402195	(7.03 , 1.00) (0.00 , N/A , 0.1)	523.0 457.3	0.2968 99.6 100.0	5.1565 [5.0000]	103.1%			
PFOA	(413.0 / 369.0) 1542271 (413.0 / 169.0) 507350	(7.85 , 1.00) (0.00 , N/A , 0.0)	579.1 660.5	0.3290 99.3 100.0	4.9257 [5.0000]	98.5%			
PFNA	(463.0 / 419.0) 1272684 (463.0 / 169.0) 289814	(8.58 , 1.00) (0.00 , N/A , 0.1)	529.4 616.1	0.2277 99.2 100.0	5.3927 [5.0000]	107.9%			
PFDA	(513.0 / 469.0) 1792557 (513.0 / 169.0) 158115	(9.25 , 1.00) (0.00 , N/A , 0.0)	497.9 293.2	0.0882 92.3 100.0	4.8282 [5.0000]	96.6%			
PFUnA	(563.0 / 519.0) 1976107 (563.0 / 169.0) 186952	(9.69 , 1.00) (0.00 , N/A , 0.2)	654.3 319.9	0.0946 94.6 100.0	5.4412 [5.0000]	108.8%			
PFDoA	(613.0 / 569.0) 2166850 (613.0 / 169.0) 284240	(9.87 , 1.00) (0.00 , N/A , -0.1)	860.9 467.5	0.1312 106.9 100.0	5.6401 [5.0000]	112.8%			
PFTrDA	(663.0 / 619.0) 1755715 (663.0 / 169.0) 446499	(10.00 , 1.01) (N/A , 0.00 , 0.1)	736.0 586.7	0.2543 130.2 100.0	4.8117 [5.0000]	96.2%			
PFTeDA	(713.0 / 669.0) 1322037 (713.0 / 169.0) 291359	(10.10 , 1.00) (0.00 , N/A , -0.1)	603.7 389.6	0.2204 115.8 100.0	4.5183 [5.0000]	90.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (3)
Acquired: 2023/01/06 - 17:50

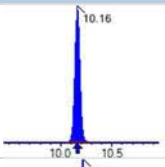
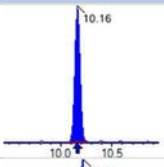
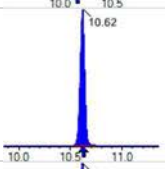
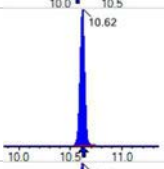
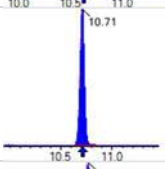
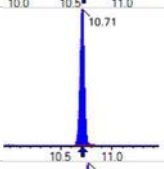
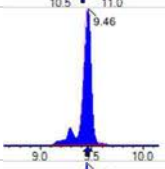
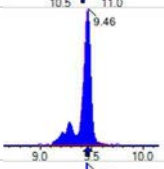
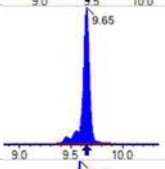
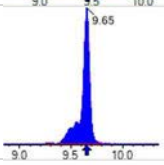
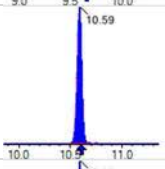
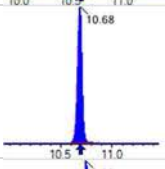
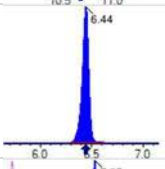
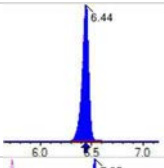
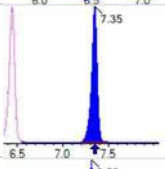
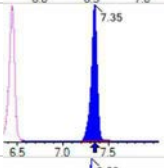
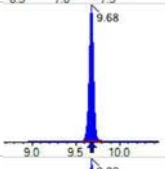
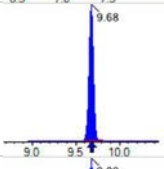
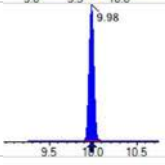
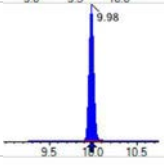
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 2243547 (299.0 / 99.0) 1411629	(6.04 , 1.00) (0.00 , N/A , 0.0)	494.2 473.6	0.6292 96.6 100.0	4.4265 [4.4237]	100.1%			
PFPeS	(349.0 / 80.0) 4110423 (349.0 / 99.0) 1606788	(7.07 , 0.89) (N/A , 0.00 , 0.1)	579.3 648.2	0.3909 106.3 100.0	4.4990 [4.6919]	95.9%			
PFHxS	(399.0 / 80.0) 3460805 (399.0 / 99.0) 1253363	(7.95 , 1.00) (0.00 , N/A , 0.1)	593.7 832.9	0.3622 105.0 100.0	4.1096 [4.5549]	90.2%			
PFHpS	(449.0 / 80.0) 2945762 (449.0 / 99.0) 872259	(8.71 , 0.93) (N/A , 0.00 , 0.0)	627.9 570.3	0.2961 105.9 100.0	5.0739 [4.7570]	106.7%			
PFOS	(499.0 / 80.0) 3402784 (499.0 / 99.0) 813354	(9.38 , 1.00) (0.00 , N/A , 0.1)	558.3 2217.1	0.2390 106.4 100.0	4.7844 [4.6375]	103.2%			
PFNS	(549.0 / 80.0) 4403725 (549.0 / 99.0) 966998	(9.73 , 1.04) (N/A , 0.00 , -0.2)	900.0 544.4	0.2196 86.9 100.0	5.6266 [4.7994]	117.2%			
PFDS	(599.0 / 80.0) 4901895 (599.0 / 99.0) 1079174	(9.89 , 1.05) (N/A , 0.00 , -0.2)	857.7 702.5	0.2202 95.0 100.0	5.7648 [4.8155]	119.7%			
PFDoS	(699.0 / 80.0) 2143322 (699.0 / 99.0) 508941	(10.09 , 1.08) (N/A , 0.00 , 0.1)	902.3 877.3	0.2375 102.3 100.0	5.9875 [4.8478]	123.5%			
4:2FTS	(327.0 / 307.0) 9452763 (327.0 / 81.0) 5554420	(5.78 , 1.00) (0.00 , N/A , -0.1)	528.3 653.6	0.5876 107.0 100.0	20.3331 [18.6906]	108.8%			
6:2FTS	(427.0 / 407.0) 5261245 (427.0 / 81.0) 4126497	(7.52 , 1.00) (0.00 , N/A , 0.3)	598.3 735.4	0.7843 108.0 100.0	20.7289 [18.9808]	109.2%			
8:2FTS	(527.0 / 507.0) 5939469 (527.0 / 81.0) 3057488	(8.92 , 1.00) (0.00 , N/A , 0.0)	681.9 605.5	0.5148 77.2 100.0	23.1522 [19.1658]	120.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (3)
Acquired: 2023/01/06 - 17:50

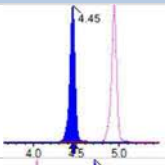
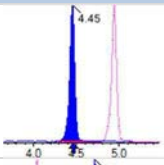
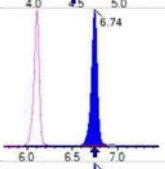
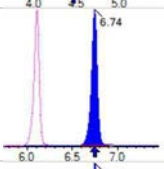
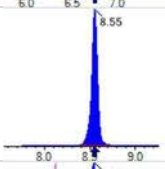
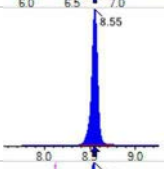
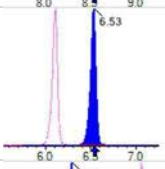
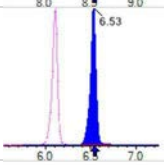
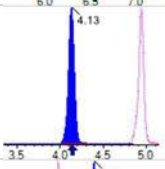
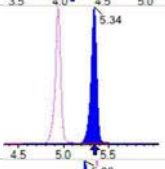
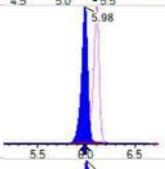
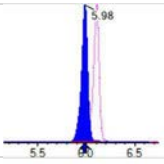
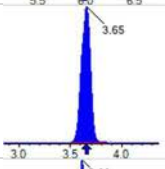
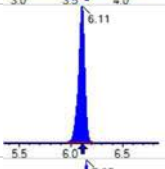
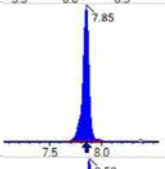
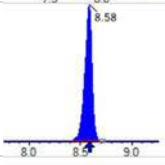
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 4394461 (498.0 / 478.0) 88050	(10.16 , 1.00) (0.00 , N/A , 0.0)	1335.3 385.0	0.0200 84.6 100.0	5.3227 [5.0000]	106.5%			
NMeFOSA	(512.0 / 219.0) 2747333 (512.0 / 169.0) 1910306	(10.62 , 1.00) (0.00 , N/A , 0.1)	981.5 852.4	0.6953 97.0 100.0	21.4789 [20.0000]	107.4%			
NEtFOSA	(526.0 / 219.0) 2580021 (526.0 / 169.0) 2834805	(10.71 , 1.00) (0.00 , N/A , 0.0)	887.6 967.4	1.0988 102.1 100.0	20.7868 [20.0000]	103.9%			
NMeFOSAA	(570.0 / 419.0) 1184681 (570.0 / 483.0) 539594	(9.46 , 1.00) (0.01 , N/A , 0.2)	580.9 344.0	0.4555 95.4 100.0	5.6740 [5.0000]	113.5%			
NEtFOSAA	(584.0 / 419.0) 1135889 (584.0 / 526.0) 634606	(9.65 , 1.00) (0.00 , N/A , -0.2)	933.1 735.9	0.5587 87.9 100.0	6.9650 [5.0000]	139.3%			QC,
NMeFOSE	(616.0 / 59.0) 650497	(10.59 , 1.00) (0.01 , N/A , 0.0)	751.7	N/A 0.0 0.0	19.4930 [20.0000]	97.5%			
NEtFOSE	(630.0 / 59.0) 133749	(10.68 , 1.00) (0.01 , N/A , 0.0)	824.5	N/A 0.0 0.0	24.6775 [20.0000]	123.4%			
HFPO-DA	(285.0 / 169.0) 894173 (285.0 / 185.0) 3169761	(6.44 , 1.00) (0.00 , N/A , 0.0)	656.1 576.7	3.5449 110.0 100.0	9.5596 [10.0000]	95.6%			
ADONA	(377.0 / 85.0) 4889704 (377.0 / 251.0) 666728	(7.35 , 1.14) (N/A , 0.00 , 0.1)	572.7 495.4	0.1364 109.1 100.0	9.7597 [9.4270]	103.5%			
9Cl-Pf3ONS	(531.0 / 351.0) 13138002 (533.0 / 353.0) 4723954	(9.68 , 1.50) (N/A , 0.00 , 0.1)	920.0 897.0	0.3596 118.7 100.0	9.8820 [9.3325]	105.9%			
11Cl-PF3OUDS	(631.0 / 451.0) 8237553 (633.0 / 453.0) 2438823	(9.98 , 1.55) (N/A , 0.00 , 0.1)	29.6 1125.7	0.2961 102.9 100.0	12.4117 [9.4321]	131.6%			QC,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (3)
Acquired: 2023/01/06 - 17:50

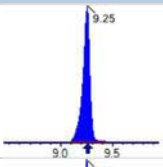
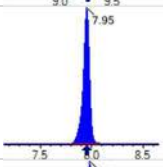
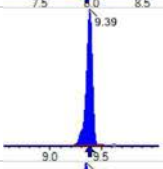
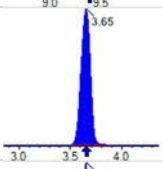
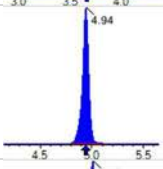
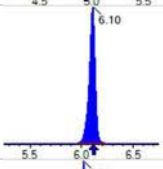
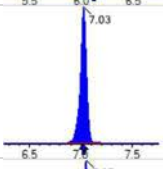
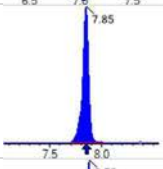
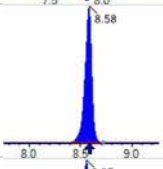
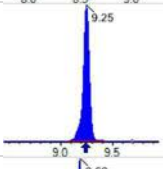
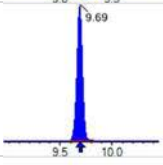
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 105756 (241.0 / 117.0) 186065	(4.45 , 0.90) (N/A , 0.00 , 0.2)	590.5 402.2	1.7594 112.8 100.0	18.2031 [20.0000]	91.0%			
5:3FTCA	(341.0 / 236.7) 850233 (341.0 / 217.0) 1525194	(6.74 , 1.10) (N/A , 0.00 , 0.0)	519.5 528.4	1.7939 96.6 100.0	18.6955 [20.0000]	93.5%			
7:3FTCA	(441.0 / 317.0) 1268435 (441.0 / 337.0) 985212	(8.55 , 1.40) (N/A , 0.00 , 0.0)	569.1 556.9	0.7767 96.8 100.0	19.8461 [20.0000]	99.2%			
PFEESA	(315.0 / 135.0) 2724057 (315.0 / 83.0) 782818	(6.53 , 1.07) (N/A , 0.00 , 0.0)	658.1 510.0	0.2874 91.3 100.0	9.7031 [8.9246]	108.7%			
PFMPA	(229.0 / 85.0) 519006	(4.13 , 0.84) (N/A , 0.00 , 0.0)	793.7	N/A 0.0 0.0	10.4174 [10.0000]	104.2%			
PFMBA	(279.0 / 85.0) 1578814	(5.34 , 1.08) (N/A , 0.00 , 0.0)	578.3	N/A 0.0 0.0	10.5282 [10.0000]	105.3%			
NFDHA	(295.0 / 201.0) 1116399 (295.0 / 85.0) 1135030	(5.98 , 0.98) (N/A , 0.00 , 0.0)	517.0 609.6	1.0167 104.8 100.0	8.5528 [10.0000]	85.5%			
13C3_PFBA_IIS	(216.0 / 172.0) 164856	(3.65 , N/A) (N/A , 0.00 , N/A)	550.7	N/A	0.9753 [1.0000]	97.5% { 100.0% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 301121	(6.11 , N/A) (N/A , 0.00 , N/A)	561.6	N/A	1.0082 [1.0000]	100.8% { 100.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 277852	(7.85 , N/A) (N/A , 0.00 , N/A)	315.2	N/A	0.8399 [1.0000]	84.0% { 100.0% }			
13C5_PFNA_IIS	(468.0 / 423.0) 253499	(8.58 , N/A) (N/A , 0.00 , N/A)	403.2	N/A	0.9093 [1.0000]	90.9% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

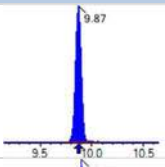
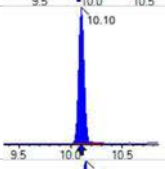
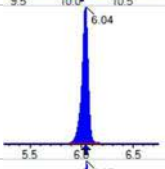
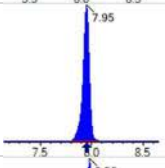
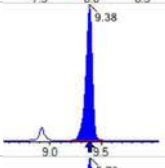
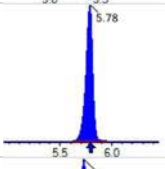
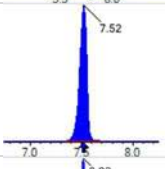
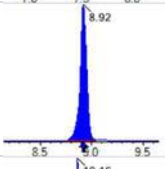
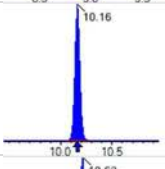
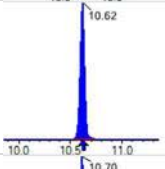
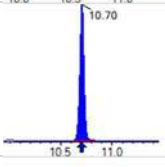
Sample I.D.: SC00069-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (3)
Acquired: 2023/01/06 - 17:50

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 284091	(9.25 , N/A) (N/A , 0.00 , N/A)	523.2	N/A	0.9085 [1.0000]	90.9% { 100.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 559023	(7.95 , N/A) (N/A , 0.00 , N/A)	697.4	N/A	0.9519 [1.0000]	95.2% { 100.0% }			
13C4_PFOS_IIS	(503.0 / 79.9) 478926	(9.39 , N/A) (N/A , 0.00 , N/A)	376.7	N/A	0.8113 [1.0000]	81.1% { 100.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1247496	(3.65 , N/A) (N/A , 0.00 , N/A)	726.7	N/A	7.5971 [8.0000]	95.0% { 100.0% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 842077	(4.94 , N/A) (N/A , 0.00 , N/A)	551.0	N/A	3.4567 [4.0000]	86.4% { 100.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 595059	(6.10 , N/A) (N/A , 0.00 , N/A)	589.4	N/A	1.8876 [2.0000]	94.4% { 100.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 513845	(7.03 , N/A) (N/A , 0.00 , N/A)	571.1	N/A	1.8202 [2.0000]	91.0% { 100.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 593446	(7.85 , N/A) (N/A , 0.00 , N/A)	648.9	N/A	2.1558 [2.0000]	107.8% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 241596	(8.58 , N/A) (N/A , 0.00 , N/A)	601.6	N/A	0.9599 [1.0000]	96.0% { 100.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 359180	(9.25 , N/A) (N/A , 0.00 , N/A)	375.9	N/A	1.0776 [1.0000]	107.8% { 100.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 405188	(9.69 , N/A) (N/A , 0.00 , N/A)	487.3	N/A	0.9190 [1.0000]	91.9% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: SC00069-CCV1 | Quant Method: 1633 - S2023-01-05B
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2023-01-06B (3)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2023-01-05.dam | Acquired: 2023/01/06 - 17:50

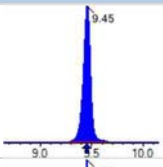
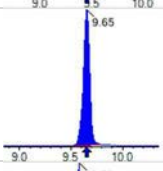
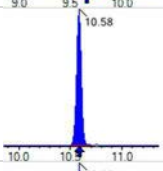
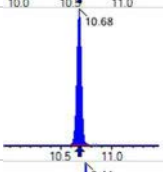
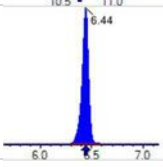
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 421127	(9.87 , N/A) (N/A , 0.00 , N/A)	624.0	N/A	0.9430 [1.0000]	94.3% { 100.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 293694	(10.10 , N/A) (N/A , 0.00 , N/A)	662.7	N/A	0.9191 [1.0000]	91.9% { 100.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1601890	(6.04 , N/A) (N/A , 0.00 , N/A)	507.7	N/A	2.0590 [2.0000]	102.9% { 100.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1000566	(7.95 , N/A) (N/A , 0.00 , N/A)	713.3	N/A	2.1627 [2.0000]	108.1% { 100.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1205082	(9.38 , N/A) (N/A , 0.00 , N/A)	201.9	N/A	2.0490 [2.0000]	102.5% { 100.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 537900	(5.78 , N/A) (N/A , 0.00 , N/A)	503.2	N/A	4.0795 [4.0000]	102.0% { 100.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 631713	(7.52 , N/A) (N/A , 0.00 , N/A)	549.4	N/A	3.4354 [4.0000]	85.9% { 100.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 678416	(8.92 , N/A) (N/A , 0.00 , N/A)	430.0	N/A	3.6144 [4.0000]	90.4% { 100.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1490189	(10.16 , N/A) (N/A , 0.00 , N/A)	1182.7	N/A	2.2735 [2.0000]	113.7% { 100.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 278882	(10.62 , N/A) (N/A , 0.00 , N/A)	780.8	N/A	1.9256 [2.0000]	96.3% { 100.0% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 247768	(10.70 , N/A) (N/A , 0.00 , N/A)	37.5	N/A	1.8806 [2.0000]	94.0% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (3)
Acquired: 2023/01/06 - 17:50

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 896574	(9.45 , N/A) (N/A , 0.00 , N/A)	286.1	N/A	4.3937 [4.0000]	109.8% { 100.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 727889	(9.65 , N/A) (N/A , 0.00 , N/A)	125.6	N/A	4.1116 [4.0000]	102.8% { 100.0% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 536158	(10.58 , N/A) (N/A , 0.00 , N/A)	1134.3	N/A	22.9795 [20.0000]	114.9% { 100.0% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 204741	(10.68 , N/A) (N/A , 0.00 , N/A)	1040.5	N/A	19.2498 [20.0000]	96.2% { 100.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1239554	(6.44 , N/A) (N/A , 0.00 , N/A)	686.6	N/A	7.1369 [8.0000]	89.2% { 100.0% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2302001
Standard ID:	22L0448	Sequence:	SC00069

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC00069-CCV2	PFBA	20.0	20.7	103	ng/mL	+/- 30.00%
	PFPEA	10.0	9.78	97.8	ng/mL	+/- 30.00%
	PFHXA	5.00	5.30	106	ng/mL	+/- 30.00%
	PFHPA	5.00	5.40	108	ng/mL	+/- 30.00%
	PFOA	5.00	4.65	93.1	ng/mL	+/- 30.00%
	PFNA	5.00	5.53	111	ng/mL	+/- 30.00%
	PFDA	5.00	5.57	111	ng/mL	+/- 30.00%
	PFUnA	5.00	6.08	122	ng/mL	+/- 30.00%
	PFDOA	5.00	6.10	122	ng/mL	+/- 30.00%
	PFTRDA	5.00	5.90	118	ng/mL	+/- 30.00%
	PFTEDA	5.00	5.02	100	ng/mL	+/- 30.00%
	PFBS	4.42	4.65	105	ng/mL	+/- 30.00%
	PFPES	4.70	4.92	105	ng/mL	+/- 30.00%
	PFHXS	4.58	4.26	93.1	ng/mL	+/- 30.00%
	PFHPS	4.78	5.18	108	ng/mL	+/- 30.00%
	PFOS	4.65	4.97	107	ng/mL	+/- 30.00%
	PFNS	4.80	5.20	108	ng/mL	+/- 30.00%
	PFDS	4.82	6.08	126	ng/mL	+/- 30.00%
	PFDOS	**4.85**	**6.35**	**131**	**ng/mL**	+/- 30.00%
	4:2FTS	18.8	21.9	117	ng/mL	+/- 30.00%
	6:2FTS	19.0	22.4	118	ng/mL	+/- 30.00%
	8:2FTS	19.2	20.4	106	ng/mL	+/- 30.00%
	PFOSA	5.00	4.95	98.9	ng/mL	+/- 30.00%
	NMeFOSA	20.0	22.1	111	ng/mL	+/- 30.00%
	NEtFOSA	20.0	21.2	106	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	4.74	94.8	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	5.72	114	ng/mL	+/- 30.00%
	NMeFOSE	20.0	20.4	102	ng/mL	+/- 30.00%
	NEtFOSE	20.0	22.9	114	ng/mL	+/- 30.00%
	HFPO-DA	10.0	9.38	93.8	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2302001
Standard ID:	22L0448	Sequence:	SC00069

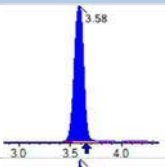
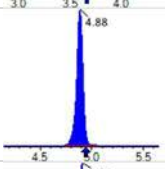
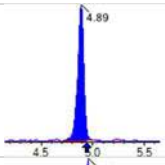
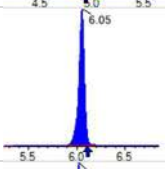
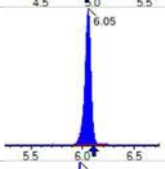
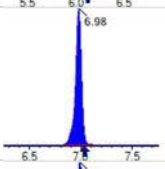
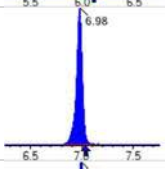
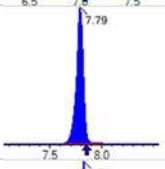
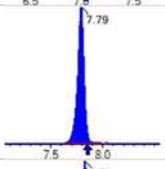
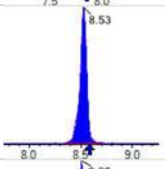
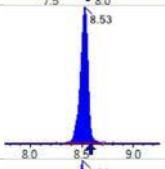
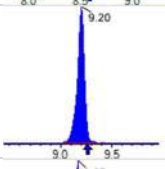
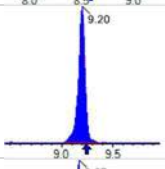
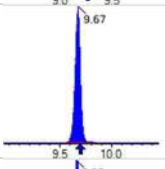
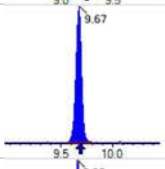
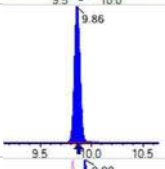
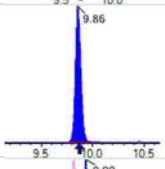
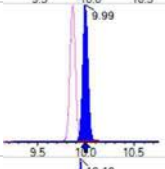
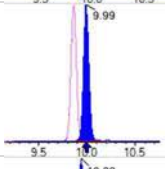
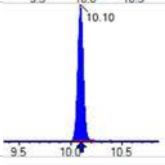
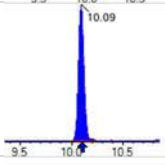
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC00069-CCV2	ADONA	9.45	10.2	108	ng/mL	+/- 30.00%
	PFEESA	8.90	9.88	111	ng/mL	+/- 30.00%
	PFMPA	10.0	8.86	88.6	ng/mL	+/- 30.00%
	PFMBA	10.0	9.87	98.7	ng/mL	+/- 30.00%
	NFDHA	10.0	9.60	96.0	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	10.3	110	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	12.0	127	ng/mL	+/- 30.00%
	3:3FTCA	20.0	17.1	85.3	ng/mL	+/- 30.00%
	5:3FTCA	20.0	21.4	107	ng/mL	+/- 30.00%
	7:3FTCA	20.0	20.2	101	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (8)
Acquired: 2023/01/06 - 19:20

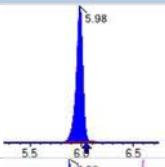
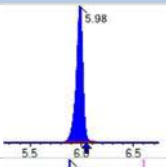
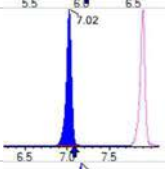
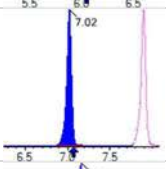
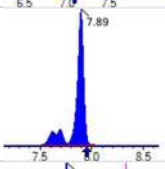
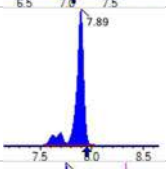
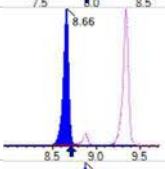
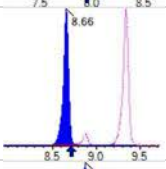
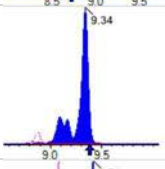
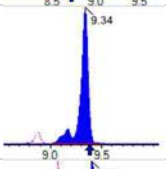
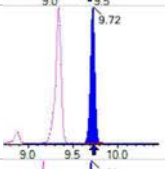
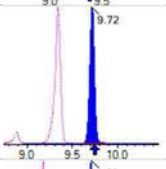
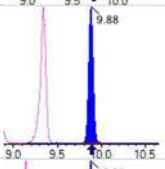
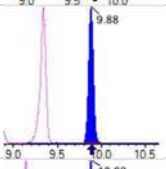
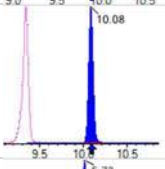
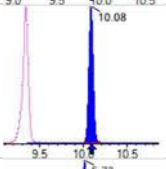
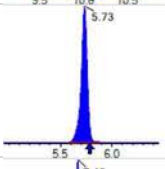
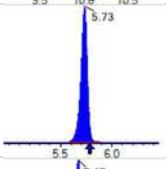
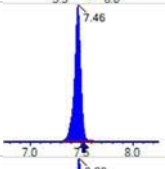
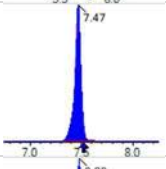
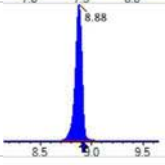
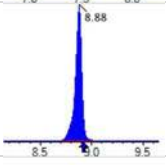
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2812724	(3.58 , 1.00) (0.00 , N/A , 0.0)	53.1	N/A 0.0 0.0	20.6604 [20.0000]	103.3%			
PFPeA	(263.0 / 219.0) 2086664 (263.0 / 69.0) 25726	(4.88 , 1.00) (0.00 , N/A , -0.1)	583.4 293.3	0.0123 101.5 99.2	9.7846 [10.0000]	97.8%			
PFHxA	(313.0 / 269.0) 1487379 (313.0 / 119.0) 148442	(6.05 , 1.00) (0.00 , N/A , 0.0)	561.0 324.1	0.0998 100.0 95.8	5.2994 [5.0000]	106.0%			
PFHpA	(363.0 / 319.0) 1487844 (363.0 / 169.0) 486682	(6.98 , 1.00) (0.00 , N/A , 0.1)	611.5 620.6	0.3271 109.7 110.2	5.4026 [5.0000]	108.1%			
PFOA	(413.0 / 369.0) 1387292 (413.0 / 169.0) 478458	(7.79 , 1.00) (0.00 , N/A , 0.1)	476.8 544.4	0.3449 104.1 104.8	4.6527 [5.0000]	93.1%			
PFNA	(463.0 / 419.0) 1261225 (463.0 / 169.0) 270675	(8.53 , 1.00) (0.00 , N/A , 0.1)	578.8 487.7	0.2146 93.5 94.2	5.5286 [5.0000]	110.6%			
PFDA	(513.0 / 469.0) 1810000 (513.0 / 169.0) 196533	(9.20 , 1.00) (0.00 , N/A , 0.2)	563.0 477.2	0.1086 113.7 123.1	5.5726 [5.0000]	111.5%			
PFUnA	(563.0 / 519.0) 2440753 (563.0 / 169.0) 234936	(9.67 , 1.00) (0.00 , N/A , 0.1)	631.1 486.3	0.0963 96.3 101.7	6.0786 [5.0000]	121.6%			
PFDoA	(613.0 / 569.0) 2507947 (613.0 / 169.0) 308442	(9.86 , 1.00) (0.00 , N/A , 0.2)	881.7 497.0	0.1230 100.2 93.8	6.0968 [5.0000]	121.9%			
PFTrDA	(663.0 / 619.0) 2306302 (663.0 / 169.0) 452207	(9.99 , 1.01) (N/A , 0.00 , 0.2)	837.2 458.7	0.1961 100.4 77.1	5.9032 [5.0000]	118.1%			
PFTeDA	(713.0 / 669.0) 1644866 (713.0 / 169.0) 350729	(10.10 , 1.00) (0.00 , N/A , 0.2)	828.6 409.1	0.2132 112.1 96.8	5.0169 [5.0000]	100.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (8)
Acquired: 2023/01/06 - 19:20

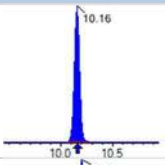
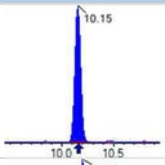
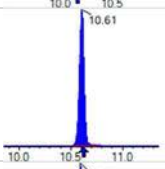
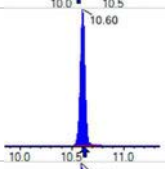
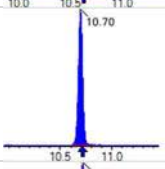
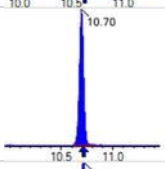
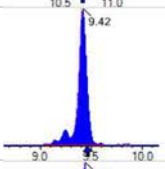
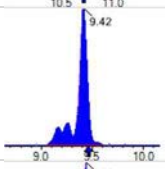
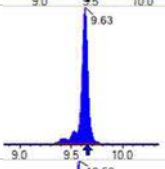
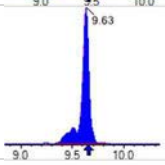
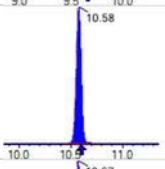
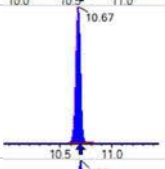
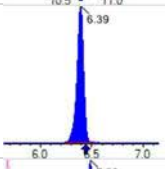
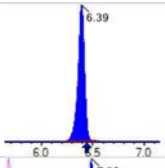
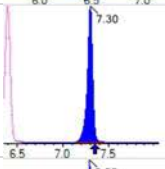
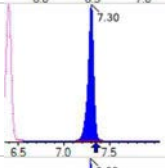
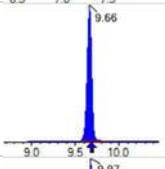
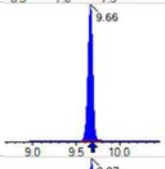
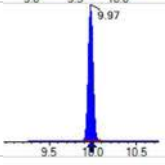
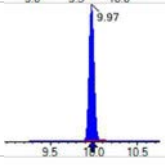
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 2261606 (299.0 / 99.0) 1508395	(5.98 , 1.00) (0.00 , N/A , 0.0)	562.7 528.2	0.6670 102.4 106.0	4.6465 [4.4237]	105.0%			
PFPeS	(349.0 / 80.0) 4331601 (349.0 / 99.0) 1644307	(7.02 , 0.89) (N/A , -0.05 , 0.2)	669.6 528.1	0.3796 103.2 97.1	4.9184 [4.6919]	104.8%			
PFHxS	(399.0 / 80.0) 3460027 (399.0 / 99.0) 1205863	(7.89 , 1.00) (0.00 , N/A , 0.1)	838.1 1045.7	0.3485 101.1 96.2	4.2624 [4.5549]	93.6%			
PFHpS	(449.0 / 80.0) 3276373 (449.0 / 99.0) 1041723	(8.66 , 0.93) (N/A , -0.05 , 0.1)	633.4 611.3	0.3179 113.7 107.4	5.1839 [4.7570]	109.0%			
PFOS	(499.0 / 80.0) 3847525 (499.0 / 99.0) 921319	(9.34 , 1.00) (0.00 , N/A , 0.1)	541.6 2782.2	0.2395 106.6 100.2	4.9711 [4.6375]	107.2%			
PFNS	(549.0 / 80.0) 4432956 (549.0 / 99.0) 1096187	(9.72 , 1.04) (N/A , -0.01 , 0.1)	719.7 880.3	0.2473 97.9 112.6	5.2028 [4.7994]	108.4%			
PFDS	(599.0 / 80.0) 5625078 (599.0 / 99.0) 1102036	(9.88 , 1.06) (N/A , -0.01 , 0.0)	1338.3 901.4	0.1959 84.6 89.0	6.0766 [4.8155]	126.2%			
PFDoS	(699.0 / 80.0) 2475673 (699.0 / 99.0) 587202	(10.08 , 1.08) (N/A , -0.01 , -0.1)	1071.9 735.1	0.2372 102.1 99.9	6.3528 [4.8478]	131.0%			QC,
4:2FTS	(327.0 / 307.0) 10797735 (327.0 / 81.0) 6127407	(5.73 , 1.00) (0.00 , N/A , 0.0)	734.8 546.9	0.5675 103.4 96.6	21.9024 [18.6906]	117.2%			
6:2FTS	(427.0 / 407.0) 6658247 (427.0 / 81.0) 4767225	(7.46 , 1.00) (0.00 , N/A , -0.2)	708.4 786.4	0.7160 98.6 91.3	22.3657 [18.9808]	117.8%			
8:2FTS	(527.0 / 507.0) 6532257 (527.0 / 81.0) 4081069	(8.88 , 1.00) (0.00 , N/A , 0.0)	460.1 659.7	0.6248 93.6 121.4	20.4240 [19.1658]	106.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (8)
Acquired: 2023/01/06 - 19:20

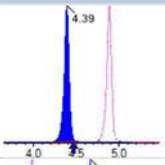
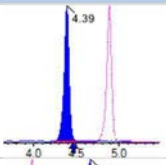
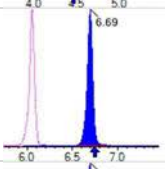
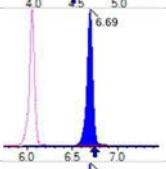
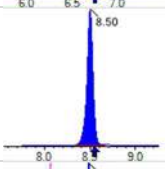
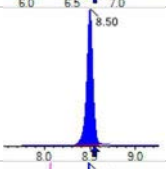
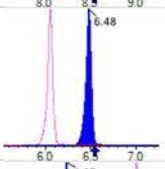
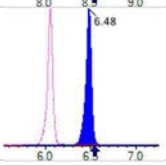
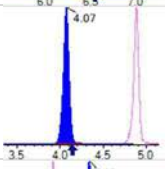
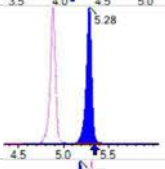
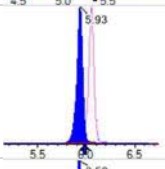
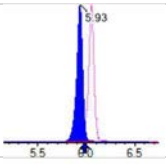
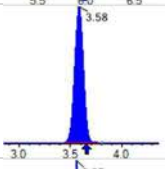
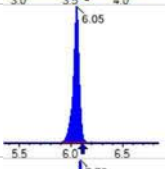
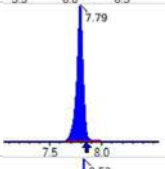
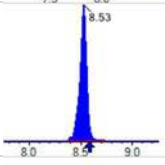
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 4438559 (498.0 / 478.0) 107372	(10.16 , 1.00) (0.00 , N/A , 0.2)	1278.2 379.6	0.0242 102.1 120.7	4.9466 [5.0000]	98.9%			
NMeFOSA	(512.0 / 219.0) 3031191 (512.0 / 169.0) 2071615	(10.61 , 1.00) (0.00 , N/A , 0.1)	1021.1 981.9	0.6834 95.3 98.3	22.1460 [20.0000]	110.7%			
NEtFOSA	(526.0 / 219.0) 2923065 (526.0 / 169.0) 3059548	(10.70 , 1.00) (0.00 , N/A , 0.0)	1197.8 1716.2	1.0467 97.2 95.3	21.1807 [20.0000]	105.9%			
NMeFOSAA	(570.0 / 419.0) 1212099 (570.0 / 483.0) 629374	(9.42 , 1.00) (0.01 , N/A , 0.2)	423.6 479.4	0.5192 108.8 114.0	4.7417 [5.0000]	94.8%			
NEtFOSAA	(584.0 / 419.0) 1195853 (584.0 / 526.0) 642698	(9.63 , 1.00) (0.00 , N/A , 0.1)	775.8 540.4	0.5374 84.5 96.2	5.7247 [5.0000]	114.5%			
NMeFOSE	(616.0 / 59.0) 747557	(10.58 , 1.00) (0.01 , N/A , 0.0)	1549.8	N/A 0.0 0.0	20.4318 [20.0000]	102.2%			
NEtFOSE	(630.0 / 59.0) 153476	(10.67 , 1.00) (0.01 , N/A , 0.0)	822.8	N/A 0.0 0.0	22.8816 [20.0000]	114.4%			
HFPO-DA	(285.0 / 169.0) 941191 (285.0 / 185.0) 3352988	(6.39 , 1.00) (0.00 , N/A , 0.0)	679.9 628.2	3.5625 110.5 100.5	9.3791 [10.0000]	93.8%			
ADONA	(377.0 / 85.0) 5467447 (377.0 / 251.0) 686596	(7.30 , 1.14) (N/A , -0.05 , 0.1)	636.5 672.4	0.1256 100.5 92.1	10.1720 [9.4270]	107.9%			
9Cl-Pf3ONS	(531.0 / 351.0) 14671211 (533.0 / 353.0) 4450559	(9.66 , 1.51) (N/A , -0.02 , 0.1)	1065.1 863.1	0.3034 100.1 84.4	10.3061 [9.3325]	110.4%			
11Cl-PF3OUDS	(631.0 / 451.0) 8539473 (633.0 / 453.0) 2554330	(9.97 , 1.56) (N/A , -0.01 , 0.1)	960.9 1264.0	0.2991 104.0 101.0	11.9931 [9.4321]	127.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (8)
Acquired: 2023/01/06 - 19:20

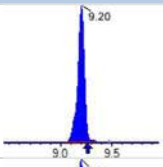
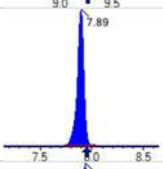
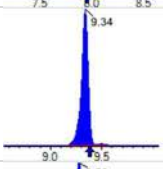
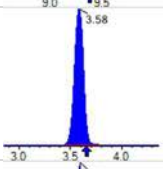
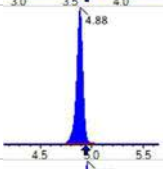
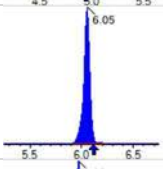
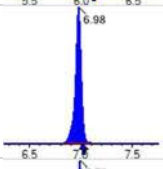
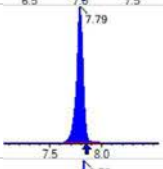
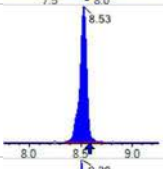
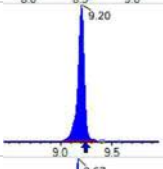
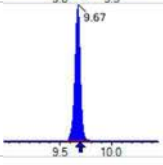
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 106593 (241.0 / 117.0) 182225	(4.39 , 0.90) (N/A , -0.07 , 0.0)	781.3 446.2	1.7095 109.6 97.2	17.0548 [20.0000]	85.3%			
5:3FTCA	(341.0 / 236.7) 936768 (341.0 / 217.0) 1640024	(6.69 , 1.11) (N/A , -0.05 , 0.0)	416.3 460.3	1.7507 94.3 97.6	21.4468 [20.0000]	107.2%			
7:3FTCA	(441.0 / 317.0) 1239000 (441.0 / 337.0) 960363	(8.50 , 1.40) (N/A , -0.05 , 0.1)	525.0 497.7	0.7751 96.6 99.8	20.1841 [20.0000]	100.9%			
PFEESA	(315.0 / 135.0) 2663186 (315.0 / 83.0) 847549	(6.48 , 1.07) (N/A , -0.05 , -0.1)	634.4 727.8	0.3182 101.1 110.7	9.8770 [8.9246]	110.7%			
PFMPA	(229.0 / 85.0) 474787	(4.07 , 0.83) (N/A , -0.06 , 0.0)	937.6	N/A 0.0 0.0	8.8586 [10.0000]	88.6%			
PFMBA	(279.0 / 85.0) 1592385	(5.28 , 1.08) (N/A , -0.05 , 0.0)	686.2	N/A 0.0 0.0	9.8708 [10.0000]	98.7%			
NFDHA	(295.0 / 201.0) 1203860 (295.0 / 85.0) 1182028	(5.93 , 0.98) (N/A , -0.05 , 0.1)	498.0 653.3	0.9819 101.2 96.6	9.6027 [10.0000]	96.0%			
13C3_PFBA_IIS	(216.0 / 172.0) 153963	(3.58 , N/A) (N/A , -0.07 , N/A)	568.0	N/A	0.9109 [1.0000]	91.1% { 93.4% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 284341	(6.05 , N/A) (N/A , -0.05 , N/A)	541.8	N/A	0.9520 [1.0000]	95.2% { 94.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 287626	(7.79 , N/A) (N/A , -0.06 , N/A)	451.3	N/A	0.8694 [1.0000]	86.9% { 103.5% }			
13C5_PFNA_IIS	(468.0 / 423.0) 245655	(8.53 , N/A) (N/A , -0.05 , N/A)	410.3	N/A	0.8811 [1.0000]	88.1% { 96.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (8)
Acquired: 2023/01/06 - 19:20

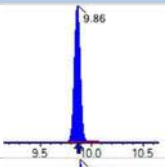
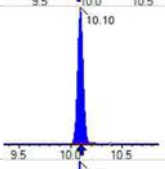
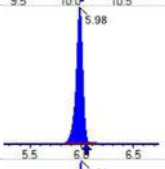
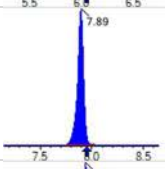
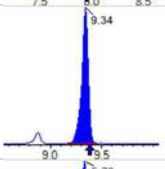
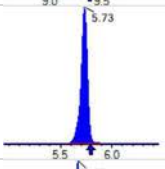
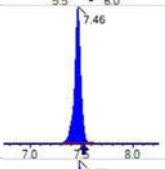
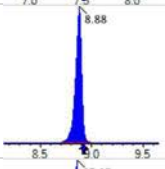
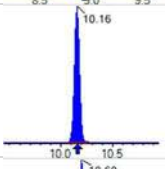
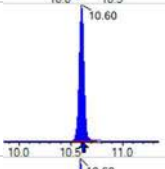
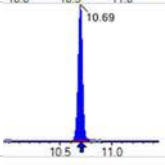
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 290696	(9.20 , N/A) (N/A , -0.05 , N/A)	390.9	N/A	0.9296 [1.0000]	93.0% { 102.3% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 539731	(7.89 , N/A) (N/A , -0.06 , N/A)	610.6	N/A	0.9190 [1.0000]	91.9% { 96.5% }			
13C4_PFOS_IIS	(503.0 / 79.9) 536129	(9.34 , N/A) (N/A , -0.05 , N/A)	313.0	N/A	0.9082 [1.0000]	90.8% { 111.9% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1186852	(3.58 , N/A) (N/A , -0.06 , N/A)	634.0	N/A	7.7391 [8.0000]	96.7% { 95.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 905884	(4.88 , N/A) (N/A , -0.06 , N/A)	597.1	N/A	3.9381 [4.0000]	98.5% { 107.6% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 571517	(6.05 , N/A) (N/A , -0.05 , N/A)	541.3	N/A	1.9200 [2.0000]	96.0% { 96.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 538437	(6.98 , N/A) (N/A , -0.05 , N/A)	590.1	N/A	2.0199 [2.0000]	101.0% { 104.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 565138	(7.79 , N/A) (N/A , -0.06 , N/A)	466.3	N/A	1.9832 [2.0000]	99.2% { 95.2% }			
13C9_PFNA_EIS	(472.0 / 427.0) 233536	(8.53 , N/A) (N/A , -0.05 , N/A)	419.2	N/A	0.9575 [1.0000]	95.8% { 96.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 314229	(9.20 , N/A) (N/A , -0.05 , N/A)	360.2	N/A	0.9213 [1.0000]	92.1% { 87.5% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 447978	(9.67 , N/A) (N/A , -0.01 , N/A)	373.4	N/A	0.9929 [1.0000]	99.3% { 110.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (8)
Acquired: 2023/01/06 - 19:20

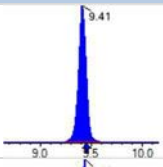
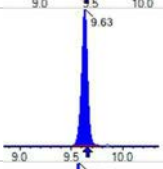
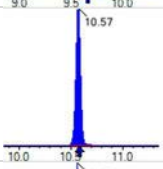
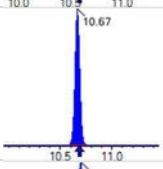
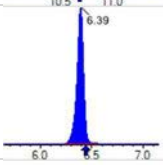
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 450908	(9.86 , N/A) (N/A , -0.01 , N/A)	404.3	N/A	0.9867 [1.0000]	98.7% { 107.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 329094	(10.10 , N/A) (N/A , -0.01 , N/A)	904.2	N/A	1.0065 [1.0000]	100.7% { 112.1% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1538333	(5.98 , N/A) (N/A , -0.06 , N/A)	439.9	N/A	2.0479 [2.0000]	102.4% { 96.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 964486	(7.89 , N/A) (N/A , -0.05 , N/A)	634.2	N/A	2.1592 [2.0000]	108.0% { 96.4% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1311892	(9.34 , N/A) (N/A , -0.04 , N/A)	201.1	N/A	1.9926 [2.0000]	99.6% { 108.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 570410	(5.73 , N/A) (N/A , -0.05 , N/A)	671.7	N/A	4.4807 [4.0000]	112.0% { 106.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 740943	(7.46 , N/A) (N/A , -0.06 , N/A)	812.9	N/A	4.1734 [4.0000]	104.3% { 117.3% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 845790	(8.88 , N/A) (N/A , -0.04 , N/A)	633.6	N/A	4.6672 [4.0000]	116.7% { 124.7% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1619582	(10.16 , N/A) (N/A , -0.01 , N/A)	1127.3	N/A	2.2073 [2.0000]	110.4% { 108.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 298428	(10.60 , N/A) (N/A , -0.01 , N/A)	738.2	N/A	1.8407 [2.0000]	92.0% { 107.0% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 275491	(10.69 , N/A) (N/A , -0.01 , N/A)	43.2	N/A	1.8679 [2.0000]	93.4% { 111.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (8)
Acquired: 2023/01/06 - 19:20

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1097678	(9.41 , N/A) (N/A , -0.04 , N/A)	388.9	N/A	4.8053 [4.0000]	120.1% { 122.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 932336	(9.63 , N/A) (N/A , -0.02 , N/A)	139.5	N/A	4.7045 [4.0000]	117.6% { 128.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 587845	(10.57 , N/A) (N/A , -0.01 , N/A)	779.0	N/A	22.5066 [20.0000]	112.5% { 109.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 253377	(10.67 , N/A) (N/A , -0.01 , N/A)	1057.0	N/A	21.2808 [20.0000]	106.4% { 123.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1329837	(6.39 , N/A) (N/A , -0.05 , N/A)	575.9	N/A	8.1086 [8.0000]	101.4% { 107.3% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2302001
Standard ID:	22L0448	Sequence:	SC00069

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC00069-CCV3	PFBA	20.0	20.8	104	ng/mL	+/- 30.00%
	PFPEA	10.0	10.0	100	ng/mL	+/- 30.00%
	PFHXA	5.00	4.96	99.2	ng/mL	+/- 30.00%
	PFHPA	5.00	5.26	105	ng/mL	+/- 30.00%
	PFOA	5.00	5.18	104	ng/mL	+/- 30.00%
	PFNA	5.00	5.44	109	ng/mL	+/- 30.00%
	PFDA	5.00	4.89	97.8	ng/mL	+/- 30.00%
	PFUnA	5.00	5.17	103	ng/mL	+/- 30.00%
	PFDOA	5.00	5.20	104	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.97	99.3	ng/mL	+/- 30.00%
	PFTEDA	5.00	5.76	115	ng/mL	+/- 30.00%
	PFBS	4.42	4.44	101	ng/mL	+/- 30.00%
	PFPES	4.70	4.59	97.6	ng/mL	+/- 30.00%
	PFHXS	4.58	4.16	90.9	ng/mL	+/- 30.00%
	PFHPS	4.78	4.12	86.1	ng/mL	+/- 30.00%
	PFOS	4.65	4.65	100	ng/mL	+/- 30.00%
	PFNS	4.80	4.78	99.6	ng/mL	+/- 30.00%
	PFDS	4.82	5.13	106	ng/mL	+/- 30.00%
	PFDOS	4.85	5.61	116	ng/mL	+/- 30.00%
	4:2FTS	18.8	18.7	99.7	ng/mL	+/- 30.00%
	6:2FTS	19.0	20.6	109	ng/mL	+/- 30.00%
	8:2FTS	19.2	21.7	113	ng/mL	+/- 30.00%
	PFOSA	5.00	4.83	96.6	ng/mL	+/- 30.00%
	NMeFOSA	20.0	21.3	106	ng/mL	+/- 30.00%
	NEtFOSA	20.0	21.5	107	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	5.14	103	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	4.78	95.7	ng/mL	+/- 30.00%
	NMeFOSE	20.0	20.6	103	ng/mL	+/- 30.00%
	NEtFOSE	20.0	23.7	119	ng/mL	+/- 30.00%
	HFPO-DA	10.0	9.33	93.3	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2302001
Standard ID:	22L0448	Sequence:	SC00069

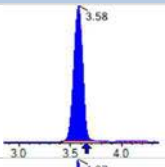
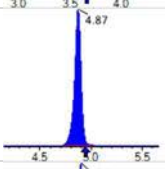
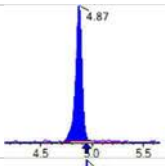
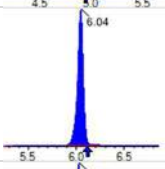
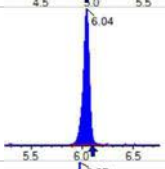
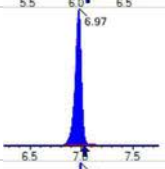
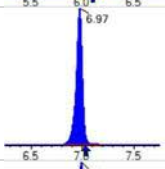
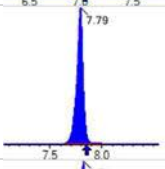
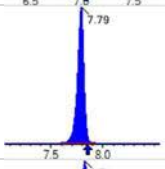
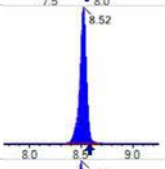
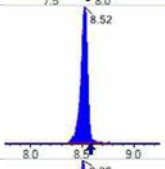
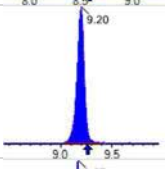
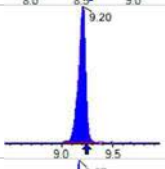
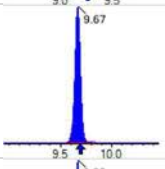
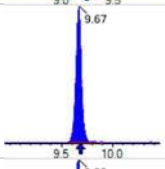
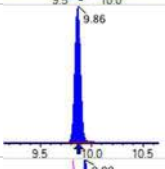
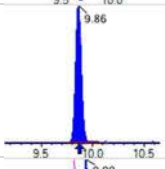
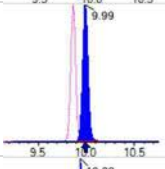
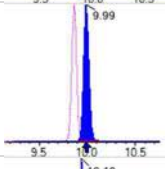
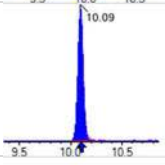
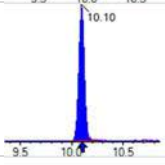
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC00069-CCV3	ADONA	9.45	10.5	111	ng/mL	+/- 30.00%
	PFEESA	8.90	10.2	115	ng/mL	+/- 30.00%
	PFMPA	10.0	9.45	94.5	ng/mL	+/- 30.00%
	PFMBA	10.0	11.3	113	ng/mL	+/- 30.00%
	NFDHA	10.0	9.32	93.2	ng/mL	+/- 30.00%
	9CL-PF3ONS	**9.35**	**12.4**	**132**	**ng/mL**	+/- 30.00%
	11CL-PF3OUDS	**9.45**	**14.6**	**155**	**ng/mL**	+/- 30.00%
	3:3FTCA	20.0	18.6	93.2	ng/mL	+/- 30.00%
	5:3FTCA	20.0	20.1	101	ng/mL	+/- 30.00%
	7:3FTCA	20.0	21.0	105	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (31)
Acquired: 2023/01/07 - 00:17

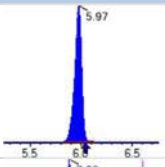
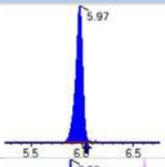
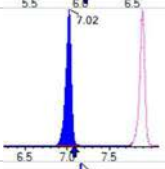
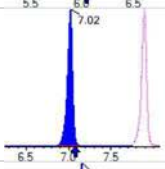
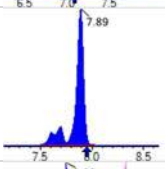
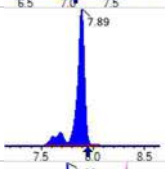
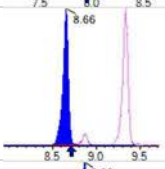
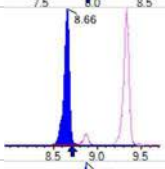
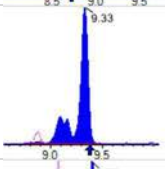
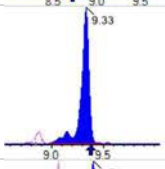
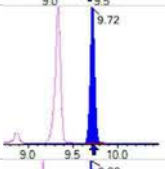
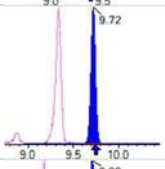
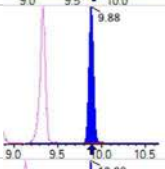
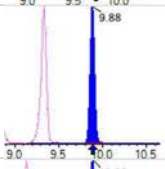
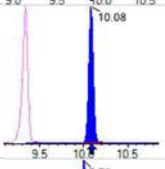
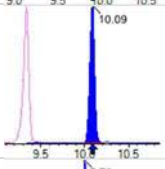
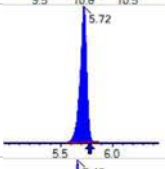
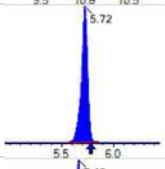
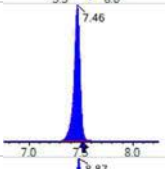
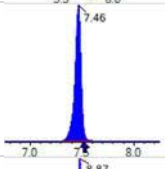
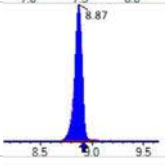
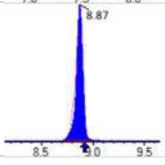
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2350409	(3.58 , 1.00) (0.00 , N/A , 0.0)	60.5	N/A 0.0 0.0	20.7609 [20.0000]	103.8%			
PFPeA	(263.0 / 219.0) 1749116 (263.0 / 69.0) 23534	(4.87 , 1.00) (0.00 , N/A , 0.0)	667.5 240.2	0.0135 110.8 108.3	10.0449 [10.0000]	100.4%			
PFHxA	(313.0 / 269.0) 1272811 (313.0 / 119.0) 136632	(6.04 , 1.00) (0.00 , N/A , 0.1)	498.6 382.0	0.1073 107.5 103.0	4.9610 [5.0000]	99.2%			
PFHpA	(363.0 / 319.0) 1333592 (363.0 / 169.0) 403946	(6.97 , 1.00) (0.00 , N/A , 0.0)	589.5 558.4	0.3029 101.6 102.1	5.2563 [5.0000]	105.1%			
PFOA	(413.0 / 369.0) 1509581 (413.0 / 169.0) 521906	(7.79 , 1.00) (0.00 , N/A , 0.2)	572.3 488.9	0.3457 104.3 105.1	5.1833 [5.0000]	103.7%			
PFNA	(463.0 / 419.0) 1127531 (463.0 / 169.0) 250579	(8.52 , 1.00) (0.00 , N/A , -0.1)	673.2 347.9	0.2222 96.8 97.6	5.4402 [5.0000]	108.8%			
PFDA	(513.0 / 469.0) 1546474 (513.0 / 169.0) 187790	(9.20 , 1.00) (0.00 , N/A , -0.5)	501.5 378.5	0.1214 127.1 137.7	4.8886 [5.0000]	97.8%			
PFUnA	(563.0 / 519.0) 2116660 (563.0 / 169.0) 243984	(9.67 , 1.00) (0.00 , N/A , 0.0)	744.2 399.8	0.1153 115.3 121.8	5.1684 [5.0000]	103.4%			
PFDoA	(613.0 / 569.0) 2289734 (613.0 / 169.0) 273068	(9.86 , 1.00) (0.00 , N/A , 0.1)	864.5 458.0	0.1193 97.2 90.9	5.1952 [5.0000]	103.9%			
PFTrDA	(663.0 / 619.0) 2078771 (663.0 / 169.0) 446351	(9.99 , 1.01) (N/A , -0.01 , 0.1)	706.8 568.4	0.2147 109.9 84.4	4.9661 [5.0000]	99.3%			
PFTeDA	(713.0 / 669.0) 1745358 (713.0 / 169.0) 319306	(10.09 , 1.00) (0.00 , N/A , 0.0)	860.4 471.9	0.1829 96.1 83.0	5.7567 [5.0000]	115.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (31)
Acquired: 2023/01/07 - 00:17

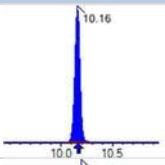
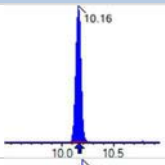
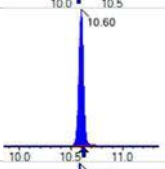
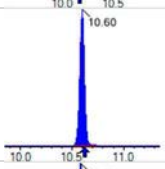
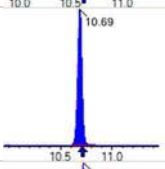
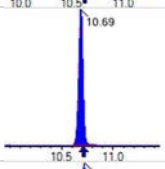
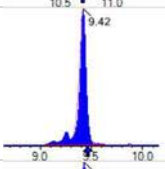
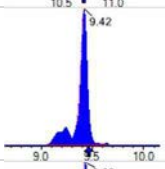
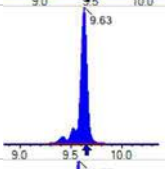
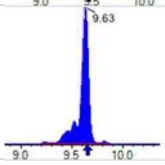
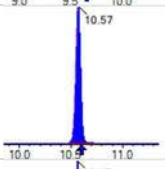
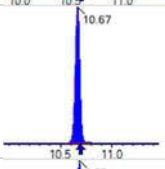
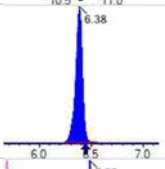
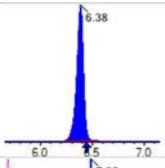
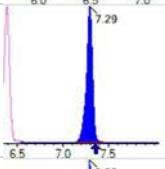
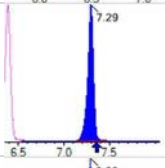
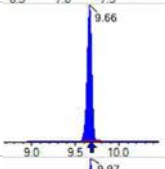
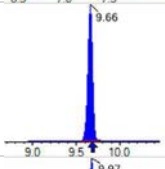
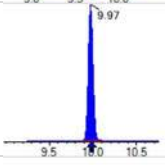
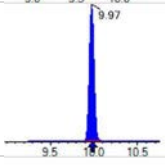
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 2006597 (299.0 / 99.0) 1276455	(5.97 , 1.00) (0.00 , N/A , 0.0)	622.9 567.7	0.6361 97.6 101.1	4.4441 [4.4237]	100.5%			
PFPeS	(349.0 / 80.0) 3715310 (349.0 / 99.0) 1457129	(7.02 , 0.89) (N/A , -0.06 , 0.0)	656.6 679.1	0.3922 106.6 100.3	4.5857 [4.6919]	97.7%			
PFHxS	(399.0 / 80.0) 3108458 (399.0 / 99.0) 1100890	(7.89 , 1.00) (0.00 , N/A , 0.0)	712.3 616.5	0.3542 102.7 97.8	4.1625 [4.5549]	91.4%			
PFHpS	(449.0 / 80.0) 2677660 (449.0 / 99.0) 810238	(8.66 , 0.93) (N/A , -0.05 , -0.1)	597.2 742.8	0.3026 108.2 102.2	4.1173 [4.7570]	86.6%			
PFOS	(499.0 / 80.0) 3705973 (499.0 / 99.0) 892536	(9.33 , 1.00) (0.00 , N/A , -0.1)	477.7 1371.4	0.2408 107.2 100.8	4.6504 [4.6375]	100.3%			
PFNS	(549.0 / 80.0) 4189650 (549.0 / 99.0) 1103701	(9.72 , 1.04) (N/A , -0.02 , -0.1)	684.6 724.2	0.2634 104.3 120.0	4.7788 [4.7994]	99.6%			
PFDS	(599.0 / 80.0) 4882000 (599.0 / 99.0) 1101185	(9.88 , 1.06) (N/A , 0.00 , -0.1)	1171.2 507.0	0.2256 97.3 102.5	5.1254 [4.8155]	106.4%			
PFDoS	(699.0 / 80.0) 2249373 (699.0 / 99.0) 455281	(10.08 , 1.08) (N/A , -0.01 , -0.2)	1114.1 401.5	0.2024 87.2 85.2	5.6096 [4.8478]	115.7%			
4:2FTS	(327.0 / 307.0) 8928974 (327.0 / 81.0) 5983402	(5.72 , 1.00) (0.00 , N/A , 0.0)	615.1 708.8	0.6701 122.0 114.0	18.7350 [18.6906]	100.2%			
6:2FTS	(427.0 / 407.0) 6143112 (427.0 / 81.0) 4411657	(7.46 , 1.00) (0.00 , N/A , 0.0)	685.0 758.9	0.7181 98.9 91.6	20.6470 [18.9808]	108.8%			
8:2FTS	(527.0 / 507.0) 5771513 (527.0 / 81.0) 3939632	(8.87 , 1.00) (0.00 , N/A , 0.0)	575.7 683.6	0.6826 102.3 132.6	21.6571 [19.1658]	113.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (31)
Acquired: 2023/01/07 - 00:17

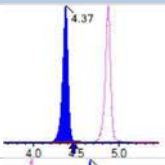
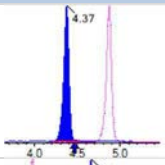
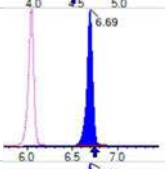
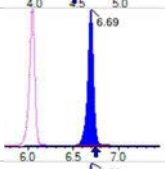
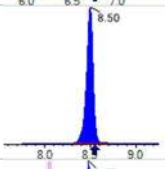
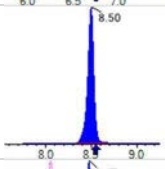
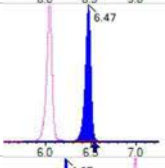
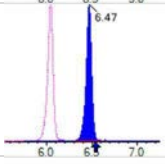
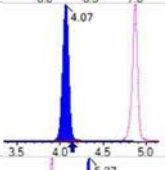
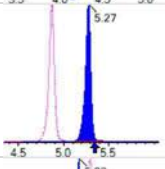
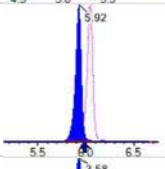
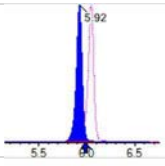
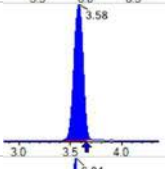
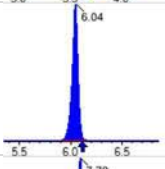
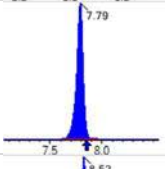
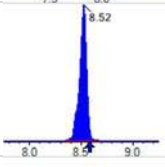
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 3750690 (498.0 / 478.0) 98543	(10.16 , 1.00) (0.00 , N/A , 0.0)	978.0 645.3	0.0263 110.9 131.1	4.8324 [5.0000]	96.6%			
NMeFOSA	(512.0 / 219.0) 2973559 (512.0 / 169.0) 1982687	(10.60 , 1.00) (0.00 , N/A , 0.1)	1373.0 1167.1	0.6668 93.0 95.9	21.2807 [20.0000]	106.4%			
NEtFOSA	(526.0 / 219.0) 2970409 (526.0 / 169.0) 3121849	(10.69 , 1.00) (0.00 , N/A , 0.0)	1005.3 1168.8	1.0510 97.6 95.7	21.4658 [20.0000]	107.3%			
NMeFOSAA	(570.0 / 419.0) 1282580 (570.0 / 483.0) 591781	(9.42 , 1.00) (0.01 , N/A , 0.0)	433.9 446.4	0.4614 96.7 101.3	5.1390 [5.0000]	102.8%			
NEtFOSAA	(584.0 / 419.0) 1022666 (584.0 / 526.0) 645466	(9.63 , 1.00) (0.00 , N/A , -0.3)	893.7 334.9	0.6312 99.3 113.0	4.7844 [5.0000]	95.7%			
NMeFOSE	(616.0 / 59.0) 725329	(10.57 , 1.00) (0.01 , N/A , 0.0)	782.5	N/A 0.0 0.0	20.5749 [20.0000]	102.9%			
NEtFOSE	(630.0 / 59.0) 165190	(10.67 , 1.00) (0.01 , N/A , 0.0)	750.4	N/A 0.0 0.0	23.7337 [20.0000]	118.7%			
HFPO-DA	(285.0 / 169.0) 756368 (285.0 / 185.0) 2942762	(6.38 , 1.00) (0.00 , N/A , 0.0)	770.2 550.8	3.8906 120.7 109.8	9.3289 [10.0000]	93.3%			
ADONA	(377.0 / 85.0) 4575154 (377.0 / 251.0) 643222	(7.29 , 1.14) (N/A , -0.06 , -0.1)	673.9 527.9	0.1406 112.5 103.1	10.5351 [9.4270]	111.8%			
9Cl-Pf3ONS	(531.0 / 351.0) 14107266 (533.0 / 353.0) 4138270	(9.66 , 1.51) (N/A , -0.02 , 0.2)	29.7 806.7	0.2933 96.8 81.6	12.3837 [9.3325]	132.7%			QC,
11Cl-PF3OUDS	(631.0 / 451.0) 8407171 (633.0 / 453.0) 2814531	(9.97 , 1.56) (N/A , -0.01 , -0.1)	926.7 1005.0	0.3348 116.4 113.1	14.6138 [9.4321]	154.9%			QC,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (31)
Acquired: 2023/01/07 - 00:17

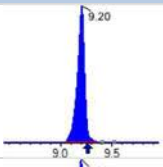
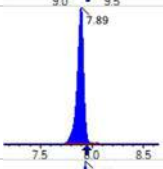
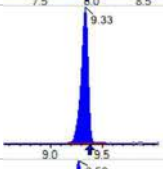
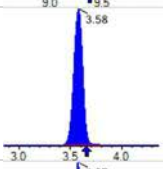
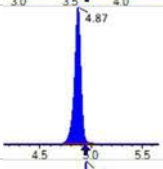
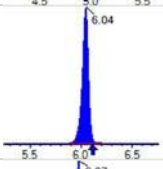
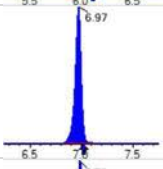
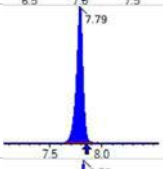
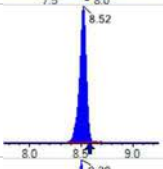
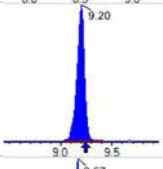
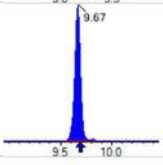
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 95078 (241.0 / 117.0) 171921	(4.37 , 0.90) (N/A , -0.08 , 0.0)	604.1 472.9	1.8082 115.9 102.8	18.6310 [20.0000]	93.2%			
5:3FTCA	(341.0 / 236.7) 803855 (341.0 / 217.0) 1510615	(6.69 , 1.11) (N/A , -0.05 , 0.1)	467.3 532.3	1.8792 101.2 104.8	20.1329 [20.0000]	100.7%			
7:3FTCA	(441.0 / 317.0) 1180477 (441.0 / 337.0) 889341	(8.50 , 1.41) (N/A , -0.05 , 0.1)	439.9 491.5	0.7534 93.9 97.0	21.0374 [20.0000]	105.2%			
PFEESA	(315.0 / 135.0) 2521648 (315.0 / 83.0) 743585	(6.47 , 1.07) (N/A , -0.06 , 0.2)	794.7 534.6	0.2949 93.7 102.6	10.2307 [8.9246]	114.6%			
PFMPA	(229.0 / 85.0) 413431	(4.07 , 0.83) (N/A , -0.07 , 0.0)	1039.0	N/A 0.0 0.0	9.4473 [10.0000]	94.5%			
PFMBA	(279.0 / 85.0) 1491155	(5.27 , 1.08) (N/A , -0.07 , 0.0)	675.0	N/A 0.0 0.0	11.3204 [10.0000]	113.2%			
NFDHA	(295.0 / 201.0) 1068335 (295.0 / 85.0) 1063834	(5.92 , 0.98) (N/A , -0.06 , 0.2)	630.4 629.1	0.9958 102.6 97.9	9.3223 [10.0000]	93.2%			
13C3_PFBA_IIS	(216.0 / 172.0) 130358	(3.58 , N/A) (N/A , -0.07 , N/A)	539.5	N/A	0.7712 [1.0000]	77.1% { 79.1% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 271943	(6.04 , N/A) (N/A , -0.06 , N/A)	671.4	N/A	0.9105 [1.0000]	91.0% { 90.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 276492	(7.79 , N/A) (N/A , -0.06 , N/A)	486.7	N/A	0.8358 [1.0000]	83.6% { 99.5% }			
13C5_PFNA_IIS	(468.0 / 423.0) 222197	(8.52 , N/A) (N/A , -0.06 , N/A)	543.6	N/A	0.7970 [1.0000]	79.7% { 87.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (31)
Acquired: 2023/01/07 - 00:17

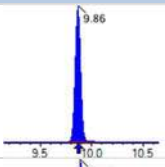
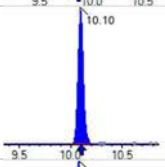
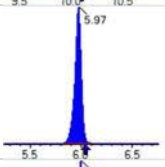
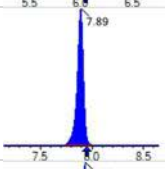
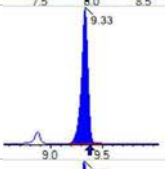
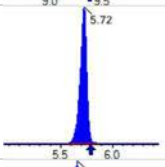
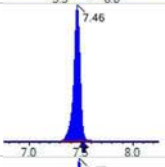
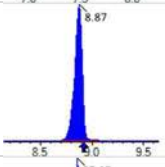
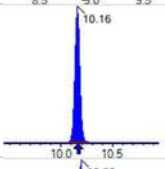
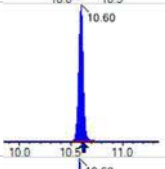
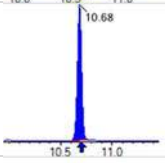
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 255770	(9.20 , N/A) (N/A , -0.05 , N/A)	327.6	N/A	0.8180 [1.0000]	81.8% { 90.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 496416	(7.89 , N/A) (N/A , -0.06 , N/A)	518.1	N/A	0.8453 [1.0000]	84.5% { 88.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 540104	(9.33 , N/A) (N/A , -0.05 , N/A)	369.6	N/A	0.9149 [1.0000]	91.5% { 112.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 986973	(3.58 , N/A) (N/A , -0.07 , N/A)	620.7	N/A	7.6012 [8.0000]	95.0% { 79.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 739668	(4.87 , N/A) (N/A , -0.07 , N/A)	569.1	N/A	3.3621 [4.0000]	84.1% { 87.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 522435	(6.04 , N/A) (N/A , -0.06 , N/A)	397.9	N/A	1.8351 [2.0000]	91.8% { 87.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 496043	(6.97 , N/A) (N/A , -0.05 , N/A)	632.0	N/A	1.9457 [2.0000]	97.3% { 96.5% }			
13C8_PFOA_EIS	(421.0 / 376.0) 552000	(7.79 , N/A) (N/A , -0.06 , N/A)	683.4	N/A	2.0151 [2.0000]	100.8% { 93.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 212173	(8.52 , N/A) (N/A , -0.06 , N/A)	437.1	N/A	0.9618 [1.0000]	96.2% { 87.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 306047	(9.20 , N/A) (N/A , -0.05 , N/A)	358.7	N/A	1.0198 [1.0000]	102.0% { 85.2% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 456912	(9.67 , N/A) (N/A , -0.02 , N/A)	348.1	N/A	1.1510 [1.0000]	115.1% { 112.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (31)
Acquired: 2023/01/07 - 00:17

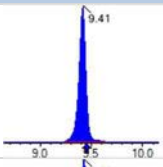
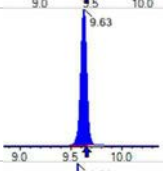
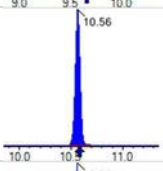
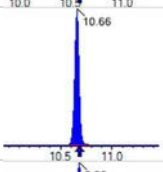
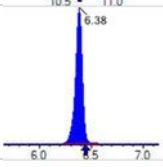
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 483116	(9.86 , N/A) (N/A , 0.00 , N/A)	683.3	N/A	1.2015 [1.0000]	120.2% { 114.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 304320	(10.10 , N/A) (N/A , -0.01 , N/A)	731.0	N/A	1.0578 [1.0000]	105.8% { 103.6% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1427039	(5.97 , N/A) (N/A , -0.06 , N/A)	646.9	N/A	2.0656 [2.0000]	103.3% { 89.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 887283	(7.89 , N/A) (N/A , -0.06 , N/A)	738.1	N/A	2.1597 [2.0000]	108.0% { 88.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1349913	(9.33 , N/A) (N/A , -0.05 , N/A)	219.6	N/A	2.0353 [2.0000]	101.8% { 112.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 551436	(5.72 , N/A) (N/A , -0.06 , N/A)	692.2	N/A	4.7096 [4.0000]	117.7% { 102.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 740523	(7.46 , N/A) (N/A , -0.06 , N/A)	644.1	N/A	4.5350 [4.0000]	113.4% { 117.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 704743	(8.87 , N/A) (N/A , -0.05 , N/A)	532.5	N/A	4.2282 [4.0000]	105.7% { 103.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1400923	(10.16 , N/A) (N/A , -0.01 , N/A)	844.7	N/A	1.8952 [2.0000]	94.8% { 94.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 304658	(10.60 , N/A) (N/A , -0.02 , N/A)	712.4	N/A	1.8653 [2.0000]	93.3% { 109.2% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 276235	(10.68 , N/A) (N/A , -0.02 , N/A)	36.2	N/A	1.8591 [2.0000]	93.0% { 111.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (31)
Acquired: 2023/01/07 - 00:17

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1071719	(9.41 , N/A) (N/A , -0.04 , N/A)	234.9	N/A	4.6571 [4.0000]	116.4% { 119.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 954010	(9.63 , N/A) (N/A , -0.03 , N/A)	159.5	N/A	4.7785 [4.0000]	119.5% { 131.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 566400	(10.56 , N/A) (N/A , -0.02 , N/A)	1442.1	N/A	21.5260 [20.0000]	107.6% { 105.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 262925	(10.66 , N/A) (N/A , -0.02 , N/A)	969.2	N/A	21.9203 [20.0000]	109.6% { 128.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1074448	(6.38 , N/A) (N/A , -0.06 , N/A)	509.2	N/A	6.8501 [8.0000]	85.6% { 86.7% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2302001
Standard ID:	22L0448	Sequence:	SC00069

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC00069-CCV4	PFBA	20.0	21.0	105	ng/mL	+/- 30.00%
	PFPEA	10.0	10.1	101	ng/mL	+/- 30.00%
	PFHXA	5.00	5.25	105	ng/mL	+/- 30.00%
	PFHPA	5.00	4.74	94.8	ng/mL	+/- 30.00%
	PFOA	5.00	5.14	103	ng/mL	+/- 30.00%
	PFNA	5.00	4.55	91.0	ng/mL	+/- 30.00%
	PFDA	5.00	5.28	106	ng/mL	+/- 30.00%
	PFUnA	5.00	5.17	103	ng/mL	+/- 30.00%
	PFDOA	5.00	4.83	96.7	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.95	98.9	ng/mL	+/- 30.00%
	PFTEDA	5.00	4.57	91.5	ng/mL	+/- 30.00%
	PFBS	4.42	4.66	105	ng/mL	+/- 30.00%
	PFPES	4.70	4.97	106	ng/mL	+/- 30.00%
	PFHXS	4.58	4.29	93.6	ng/mL	+/- 30.00%
	PFHPS	4.78	4.77	99.7	ng/mL	+/- 30.00%
	PFOS	4.65	4.49	96.5	ng/mL	+/- 30.00%
	PFNS	4.80	4.37	91.0	ng/mL	+/- 30.00%
	PFDS	4.82	5.13	106	ng/mL	+/- 30.00%
	PFDOS	4.85	5.62	116	ng/mL	+/- 30.00%
	4:2FTS	18.8	17.9	95.0	ng/mL	+/- 30.00%
	6:2FTS	19.0	20.8	109	ng/mL	+/- 30.00%
	8:2FTS	19.2	24.9	130	ng/mL	+/- 30.00%
	PFOSA	5.00	4.81	96.2	ng/mL	+/- 30.00%
	NMeFOSA	20.0	22.6	113	ng/mL	+/- 30.00%
	NEtFOSA	20.0	22.2	111	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	4.52	90.4	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	5.72	114	ng/mL	+/- 30.00%
	NMeFOSE	20.0	20.6	103	ng/mL	+/- 30.00%
	NEtFOSE	20.0	23.3	117	ng/mL	+/- 30.00%
	HFPO-DA	10.0	9.54	95.4	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0170
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2302001
Standard ID:	22L0448	Sequence:	SC00069

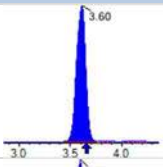
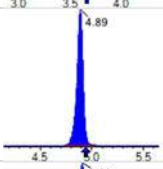
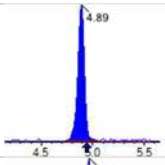
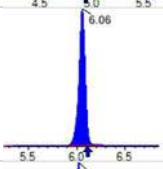
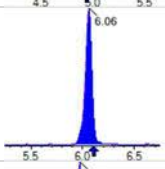
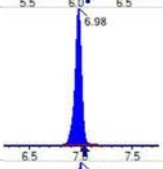
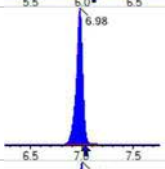
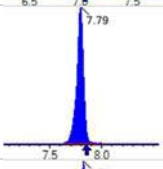
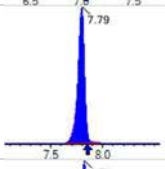
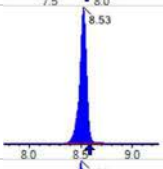
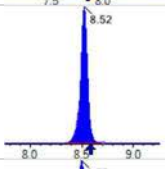
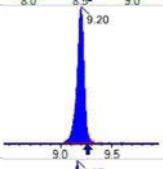
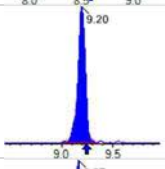
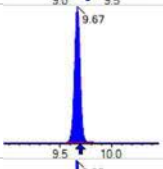
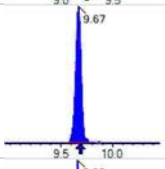
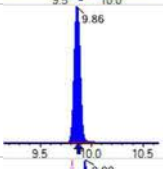
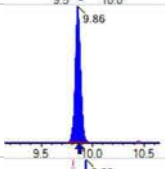
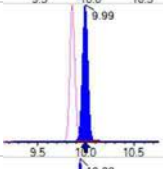
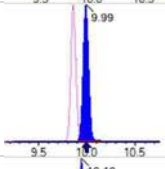
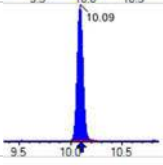
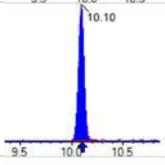
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SC00069-CCV4	ADONA	9.45	9.78	103	ng/mL	+/- 30.00%
	PFEESA	8.90	10.4	117	ng/mL	+/- 30.00%
	PFMPA	10.0	9.56	95.6	ng/mL	+/- 30.00%
	PFMBA	10.0	10.0	100	ng/mL	+/- 30.00%
	NFDHA	10.0	10.2	102	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	10.0	107	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	11.7	124	ng/mL	+/- 30.00%
	3:3FTCA	20.0	18.3	91.4	ng/mL	+/- 30.00%
	5:3FTCA	20.0	22.2	111	ng/mL	+/- 30.00%
	7:3FTCA	20.0	21.4	107	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (53)
Acquired: 2023/01/07 - 05:00

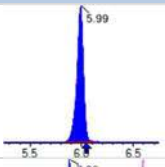
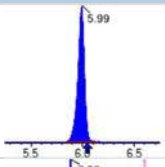
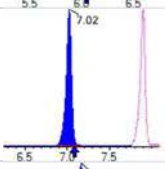
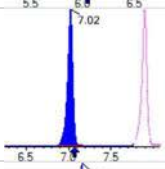
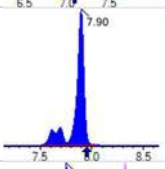
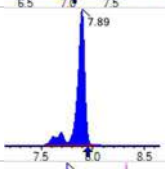
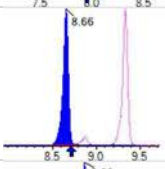
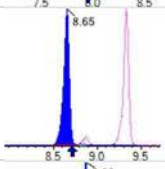
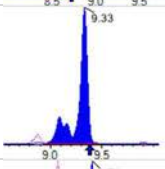
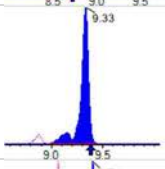
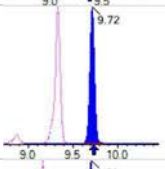
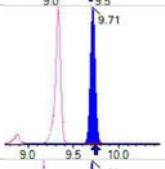
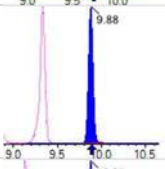
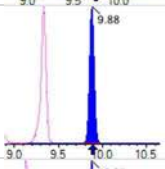
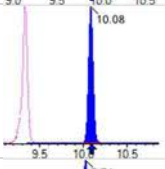
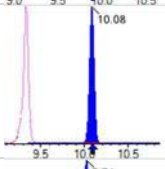
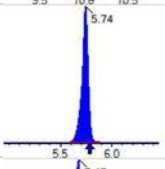
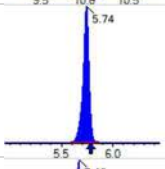
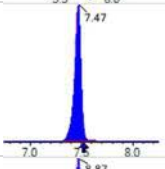
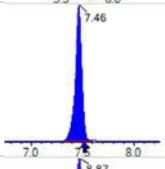
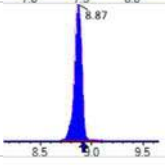
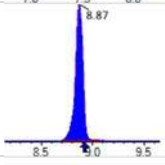
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 2630354	(3.60 , 1.00) (0.00 , N/A , 0.0)	54.9	N/A 0.0 0.0	20.9543 [20.0000]	104.8%			
PFPeA	(263.0 / 219.0) 1896574 (263.0 / 69.0) 24727	(4.89 , 1.00) (0.00 , N/A , 0.0)	530.9 258.8	0.0130 107.4 104.9	10.1049 [10.0000]	101.0%			
PFHxA	(313.0 / 269.0) 1202693 (313.0 / 119.0) 123598	(6.06 , 1.00) (0.00 , N/A , -0.2)	518.8 304.2	0.1028 102.9 98.6	5.2525 [5.0000]	105.0%			
PFHpA	(363.0 / 319.0) 1120328 (363.0 / 169.0) 353126	(6.98 , 1.00) (0.00 , N/A , -0.2)	496.8 460.2	0.3152 105.8 106.2	4.7382 [5.0000]	94.8%			
PFOA	(413.0 / 369.0) 1330345 (413.0 / 169.0) 479415	(7.79 , 1.00) (0.00 , N/A , 0.0)	553.9 550.7	0.3604 108.8 109.5	5.1439 [5.0000]	102.9%			
PFNA	(463.0 / 419.0) 1043903 (463.0 / 169.0) 216941	(8.53 , 1.00) (0.00 , N/A , 0.1)	466.1 591.5	0.2078 90.5 91.3	4.5494 [5.0000]	91.0%			
PFDA	(513.0 / 469.0) 1695577 (513.0 / 169.0) 163825	(9.20 , 1.00) (0.00 , N/A , 0.0)	583.0 290.5	0.0966 101.1 109.5	5.2823 [5.0000]	105.6%			
PFUnA	(563.0 / 519.0) 2011675 (563.0 / 169.0) 186255	(9.67 , 1.00) (0.00 , N/A , -0.1)	605.9 364.5	0.0926 92.6 97.9	5.1723 [5.0000]	103.4%			
PFDoA	(613.0 / 569.0) 1896107 (613.0 / 169.0) 252977	(9.86 , 1.00) (0.00 , N/A , 0.2)	1093.5 512.8	0.1334 108.8 101.7	4.8332 [5.0000]	96.7%			
PFTrDA	(663.0 / 619.0) 1843081 (663.0 / 169.0) 350308	(9.99 , 1.01) (N/A , -0.01 , 0.2)	677.9 561.7	0.1901 97.3 74.7	4.9466 [5.0000]	98.9%			
PFTeDA	(713.0 / 669.0) 1409615 (713.0 / 169.0) 291970	(10.09 , 1.00) (0.00 , N/A , -0.2)	909.7 305.6	0.2071 108.8 94.0	4.5726 [5.0000]	91.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (53)
Acquired: 2023/01/07 - 05:00

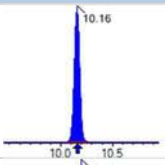
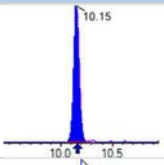
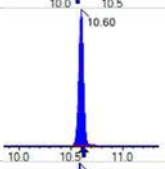
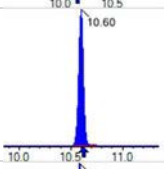
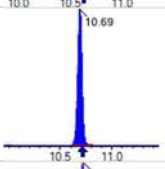
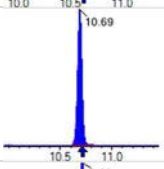
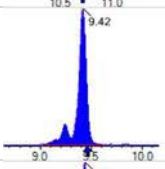
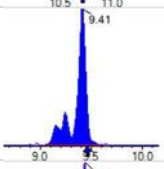
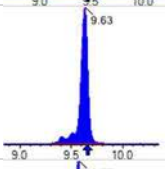
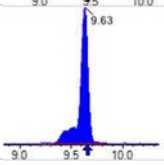
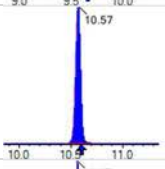
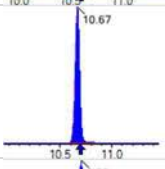
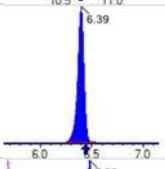
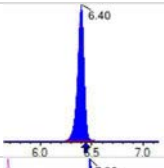
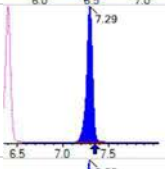
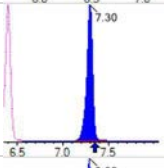
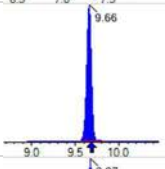
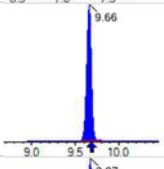
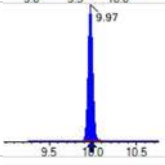
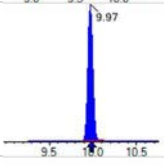
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 2074548 (299.0 / 99.0) 1321621	(5.99 , 1.00) (0.00 , N/A , 0.0)	616.0 661.9	0.6371 97.8 101.3	4.6628 [4.4237]	105.4%			
PFPeS	(349.0 / 80.0) 3692520 (349.0 / 99.0) 1367364	(7.02 , 0.89) (N/A , -0.05 , 0.0)	631.3 594.9	0.3703 100.7 94.7	4.9691 [4.6919]	105.9%			
PFHxS	(399.0 / 80.0) 2936651 (399.0 / 99.0) 1041356	(7.90 , 1.00) (0.00 , N/A , 0.2)	641.5 708.4	0.3546 102.9 97.9	4.2874 [4.5549]	94.1%			
PFHpS	(449.0 / 80.0) 3034751 (449.0 / 99.0) 847097	(8.66 , 0.93) (N/A , -0.05 , 0.2)	589.7 627.6	0.2791 99.8 94.3	4.7671 [4.7570]	100.2%			
PFOS	(499.0 / 80.0) 3502882 (499.0 / 99.0) 856596	(9.33 , 1.00) (0.00 , N/A , 0.0)	508.3 1987.2	0.2445 108.9 102.3	4.4888 [4.6375]	96.8%			
PFNS	(549.0 / 80.0) 3749036 (549.0 / 99.0) 866229	(9.72 , 1.04) (N/A , -0.02 , 0.0)	954.1 808.6	0.2311 91.5 105.2	4.3685 [4.7994]	91.0%			
PFDS	(599.0 / 80.0) 4780814 (599.0 / 99.0) 1162988	(9.88 , 1.06) (N/A , -0.01 , 0.0)	1298.5 849.1	0.2433 105.0 110.5	5.1275 [4.8155]	106.5%			
PFDoS	(699.0 / 80.0) 2207800 (699.0 / 99.0) 435002	(10.08 , 1.08) (N/A , -0.01 , 0.0)	1375.5 656.8	0.1970 84.8 83.0	5.6248 [4.8478]	116.0%			
4:2FTS	(327.0 / 307.0) 9496709 (327.0 / 81.0) 6099830	(5.74 , 1.00) (0.00 , N/A , 0.1)	635.1 593.6	0.6423 117.0 109.3	17.8602 [18.6906]	95.6%			
6:2FTS	(427.0 / 407.0) 6073338 (427.0 / 81.0) 4295084	(7.47 , 1.00) (0.00 , N/A , 0.2)	636.1 630.5	0.7072 97.4 90.2	20.7787 [18.9808]	109.5%			
8:2FTS	(527.0 / 507.0) 6052440 (527.0 / 81.0) 3281882	(8.87 , 1.00) (0.00 , N/A , 0.1)	506.0 524.8	0.5422 81.3 105.3	24.8705 [19.1658]	129.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (53)
Acquired: 2023/01/07 - 05:00

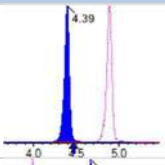
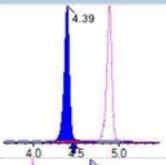
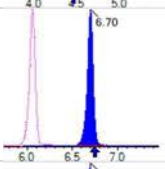
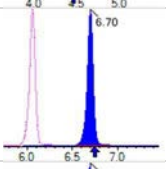
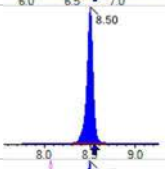
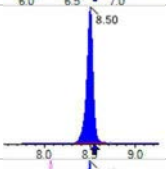
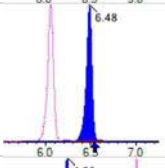
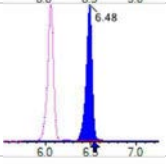
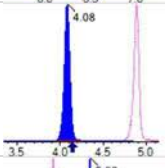
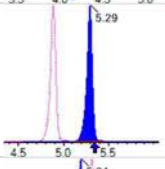
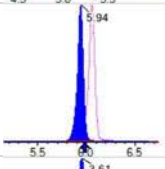
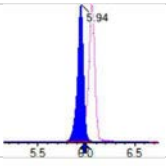
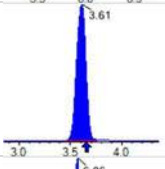
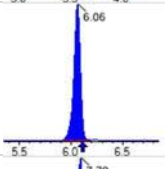
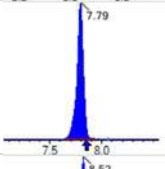
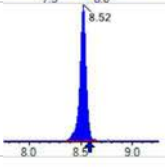
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 3699188 (498.0 / 478.0) 96075	(10.16 , 1.00) (0.00 , N/A , 0.5)	1319.8 272.5	0.0260 109.6 129.6	4.8103 [5.0000]	96.2%			
NMeFOSA	(512.0 / 219.0) 2673529 (512.0 / 169.0) 1932629	(10.60 , 1.00) (0.00 , N/A , 0.1)	1128.9 902.5	0.7229 100.8 104.0	22.6264 [20.0000]	113.1%			
NEtFOSA	(526.0 / 219.0) 2662788 (526.0 / 169.0) 2923463	(10.69 , 1.00) (0.00 , N/A , 0.1)	1127.4 1064.5	1.0979 102.0 99.9	22.1774 [20.0000]	110.9%			
NMeFOSAA	(570.0 / 419.0) 994681 (570.0 / 483.0) 527095	(9.42 , 1.00) (0.01 , N/A , 0.3)	357.1 366.4	0.5299 111.0 116.3	4.5217 [5.0000]	90.4%			
NEtFOSAA	(584.0 / 419.0) 1005928 (584.0 / 526.0) 553137	(9.63 , 1.00) (0.01 , N/A , 0.0)	731.3 556.8	0.5499 86.5 98.4	5.7176 [5.0000]	114.4%			
NMeFOSE	(616.0 / 59.0) 615914	(10.57 , 1.00) (0.01 , N/A , 0.0)	822.0	N/A 0.0 0.0	20.6083 [20.0000]	103.0%			
NEtFOSE	(630.0 / 59.0) 136752	(10.67 , 1.00) (0.00 , N/A , 0.0)	672.2	N/A 0.0 0.0	23.3474 [20.0000]	116.7%			
HFPO-DA	(285.0 / 169.0) 820195 (285.0 / 185.0) 2872356	(6.39 , 1.00) (0.00 , N/A , -0.1)	806.2 574.2	3.5020 108.7 98.8	9.5400 [10.0000]	95.4%			
ADONA	(377.0 / 85.0) 4502637 (377.0 / 251.0) 610191	(7.29 , 1.14) (N/A , -0.05 , -0.2)	617.5 477.0	0.1355 108.4 99.4	9.7776 [9.4270]	103.7%			
9Cl-Pf3ONS	(531.0 / 351.0) 12252647 (533.0 / 353.0) 3987350	(9.66 , 1.51) (N/A , -0.02 , 0.0)	678.8 721.6	0.3254 107.4 90.5	10.0337 [9.3325]	107.5%			
11Cl-PF3OUDS	(631.0 / 451.0) 7131955 (633.0 / 453.0) 2147560	(9.97 , 1.56) (N/A , -0.01 , 0.1)	1063.0 788.2	0.3011 104.7 101.7	11.6911 [9.4321]	124.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (53)
Acquired: 2023/01/07 - 05:00

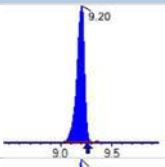
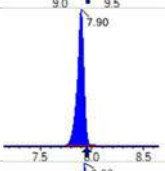
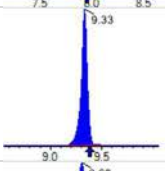
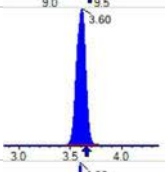
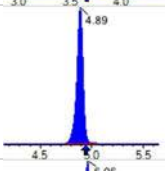
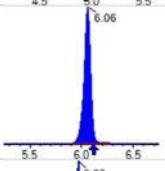
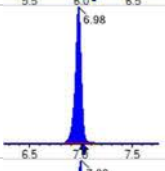
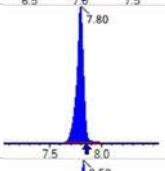
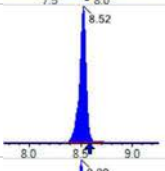
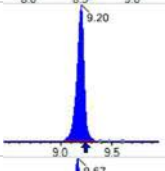
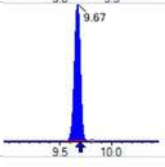
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 100531 (241.0 / 117.0) 167691	(4.39 , 0.90) (N/A , -0.06 , 0.1)	590.5 463.3	1.6681 106.9 94.8	18.2763 [20.0000]	91.4%			
5:3FTCA	(341.0 / 236.7) 789372 (341.0 / 217.0) 1424520	(6.70 , 1.11) (N/A , -0.05 , 0.0)	504.7 534.6	1.8046 97.2 100.6	22.1523 [20.0000]	110.8%			
7:3FTCA	(441.0 / 317.0) 1071747 (441.0 / 337.0) 833653	(8.50 , 1.40) (N/A , -0.05 , 0.1)	510.3 496.0	0.7778 97.0 100.1	21.4011 [20.0000]	107.0%			
PFEESA	(315.0 / 135.0) 2285701 (315.0 / 83.0) 672736	(6.48 , 1.07) (N/A , -0.05 , -0.1)	473.7 596.5	0.2943 93.5 102.4	10.3908 [8.9246]	116.4%			
PFMPA	(229.0 / 85.0) 451007	(4.08 , 0.84) (N/A , -0.05 , 0.0)	843.4	N/A 0.0 0.0	9.5614 [10.0000]	95.6%			
PFMBA	(279.0 / 85.0) 1419139	(5.29 , 1.08) (N/A , -0.05 , 0.0)	654.8	N/A 0.0 0.0	9.9954 [10.0000]	100.0%			
NFDHA	(295.0 / 201.0) 1041489 (295.0 / 85.0) 1053673	(5.94 , 0.98) (N/A , -0.04 , -0.1)	608.6 579.5	1.0117 104.3 99.5	10.1831 [10.0000]	101.8%			
13C3_PFBA_IIS	(216.0 / 172.0) 142337	(3.61 , N/A) (N/A , -0.05 , N/A)	603.0	N/A	0.8421 [1.0000]	84.2% { 86.3% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 233364	(6.06 , N/A) (N/A , -0.04 , N/A)	420.6	N/A	0.7813 [1.0000]	78.1% { 77.5% }			
13C4_PFOA_IIS	(417.0 / 372.0) 251448	(7.79 , N/A) (N/A , -0.06 , N/A)	580.0	N/A	0.7601 [1.0000]	76.0% { 90.5% }			
13C5_PFNA_IIS	(468.0 / 423.0) 246498	(8.52 , N/A) (N/A , -0.06 , N/A)	418.9	N/A	0.8841 [1.0000]	88.4% { 97.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (53)
Acquired: 2023/01/07 - 05:00

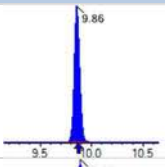
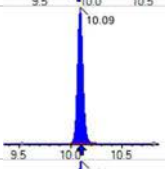
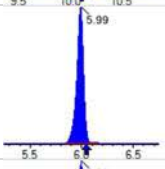
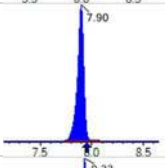
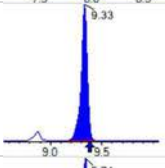
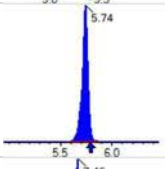
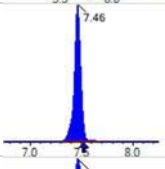
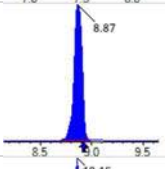
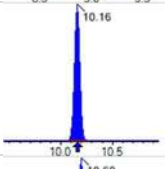
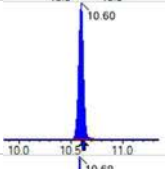
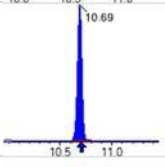
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 267754	(9.20 , N/A) (N/A , -0.05 , N/A)	414.0	N/A	0.8563 [1.0000]	85.6% { 94.2% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 468102	(7.90 , N/A) (N/A , -0.06 , N/A)	736.3	N/A	0.7970 [1.0000]	79.7% { 83.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 514240	(9.33 , N/A) (N/A , -0.05 , N/A)	515.6	N/A	0.8711 [1.0000]	87.1% { 107.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1094334	(3.60 , N/A) (N/A , -0.04 , N/A)	684.2	N/A	7.7187 [8.0000]	96.5% { 87.7% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 797262	(4.89 , N/A) (N/A , -0.05 , N/A)	578.1	N/A	4.2230 [4.0000]	105.6% { 94.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 466254	(6.06 , N/A) (N/A , -0.05 , N/A)	363.3	N/A	1.9085 [2.0000]	95.4% { 78.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 462286	(6.98 , N/A) (N/A , -0.05 , N/A)	528.2	N/A	2.1131 [2.0000]	105.7% { 90.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 490192	(7.80 , N/A) (N/A , -0.05 , N/A)	568.6	N/A	1.9677 [2.0000]	98.4% { 82.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 234898	(8.52 , N/A) (N/A , -0.06 , N/A)	455.2	N/A	0.9598 [1.0000]	96.0% { 97.2% }			
13C6_PFDA_EIS	(519.0 / 474.0) 310542	(9.20 , N/A) (N/A , -0.05 , N/A)	313.8	N/A	0.9885 [1.0000]	98.9% { 86.5% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 433928	(9.67 , N/A) (N/A , -0.02 , N/A)	492.6	N/A	1.0442 [1.0000]	104.4% { 107.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (53)
Acquired: 2023/01/07 - 05:00

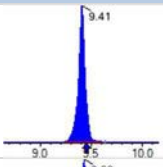
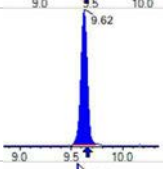
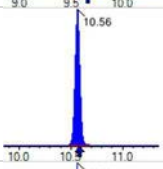
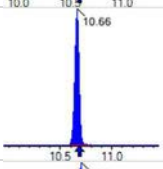
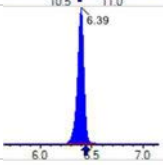
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 430026	(9.86 , N/A) (N/A , -0.01 , N/A)	757.3	N/A	1.0216 [1.0000]	102.2% { 102.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 309429	(10.09 , N/A) (N/A , -0.01 , N/A)	725.4	N/A	1.0275 [1.0000]	102.7% { 105.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1406153	(5.99 , N/A) (N/A , -0.05 , N/A)	526.4	N/A	2.1584 [2.0000]	107.9% { 87.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 813807	(7.90 , N/A) (N/A , -0.05 , N/A)	640.9	N/A	2.1007 [2.0000]	105.0% { 81.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1321384	(9.33 , N/A) (N/A , -0.05 , N/A)	194.0	N/A	2.0925 [2.0000]	104.6% { 109.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 615224	(5.74 , N/A) (N/A , -0.04 , N/A)	894.0	N/A	5.5722 [4.0000]	139.3% { 114.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 727472	(7.46 , N/A) (N/A , -0.06 , N/A)	646.6	N/A	4.7245 [4.0000]	118.1% { 115.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 643556	(8.87 , N/A) (N/A , -0.05 , N/A)	437.7	N/A	4.0946 [4.0000]	102.4% { 94.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1388028	(10.16 , N/A) (N/A , -0.01 , N/A)	833.1	N/A	1.9722 [2.0000]	98.6% { 93.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 257627	(10.60 , N/A) (N/A , -0.02 , N/A)	699.7	N/A	1.6567 [2.0000]	82.8% { 92.4% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 239682	(10.69 , N/A) (N/A , -0.02 , N/A)	43.8	N/A	1.6943 [2.0000]	84.7% { 96.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCV4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (53)
Acquired: 2023/01/07 - 05:00

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 944620	(9.41 , N/A) (N/A , -0.05 , N/A)	314.3	N/A	4.3113 [4.0000]	107.8% { 105.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 785236	(9.62 , N/A) (N/A , -0.03 , N/A)	104.2	N/A	4.1309 [4.0000]	103.3% { 107.9% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 480180	(10.56 , N/A) (N/A , -0.02 , N/A)	1263.3	N/A	19.1671 [20.0000]	95.8% { 89.6% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 221263	(10.66 , N/A) (N/A , -0.02 , N/A)	1108.1	N/A	19.3747 [20.0000]	96.9% { 108.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1139333	(6.39 , N/A) (N/A , -0.05 , N/A)	690.7	N/A	8.4646 [8.0000]	105.8% { 91.9% }			

INTENTIONALLY LEFT BLANK

INTENTIONALLY LEFT BLANK

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC00059
Calibration: 2302001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC00059-ICB1	PFBA	0.00	ng/mL	0.75	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	0.0180	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: SC00059
Calibration: 2302001

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

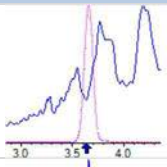
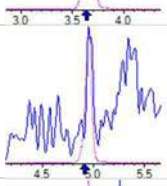
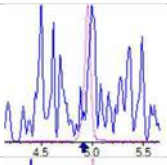
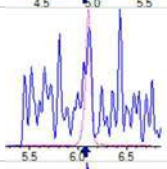
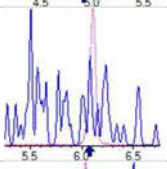
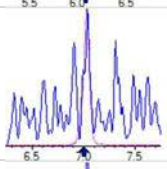
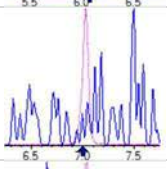
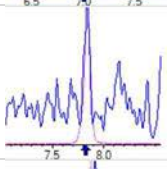
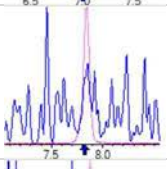
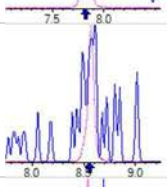
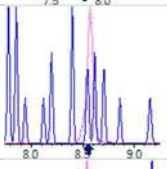
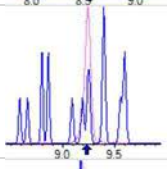
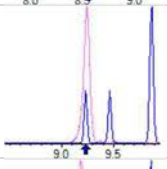
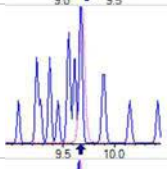
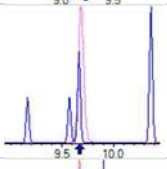
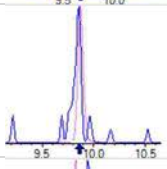
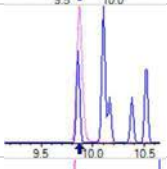
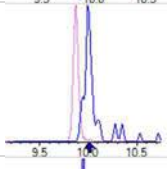
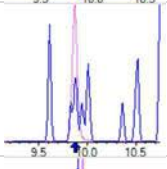
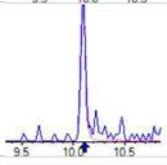
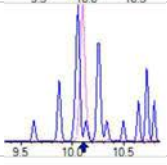
Lab Sample ID	Analyte	Found	Units	RL	C
SC00059-ICB1	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.07	ng/mL		
	13C5-PFPEA	3.90	ng/mL		
	13C5-PFHXA	1.92	ng/mL		
	13C4-PFHPA	1.79	ng/mL		
	13C8-PFOA	1.89	ng/mL		
	13C9-PFNA	1.04	ng/mL		
	13C6-PFDA	1.16	ng/mL		
	13C7-PFUnA	1.26	ng/mL		
	13C2-PFDOA	0.998	ng/mL		
	13C2-PFTEDA	1.30	ng/mL		
	13C3-PFBS	1.94	ng/mL		
	13C3-PFHXS	2.09	ng/mL		
	13C8-PFOS	2.00	ng/mL		
	13C2-4:2FTS	4.74	ng/mL		
	13C2-6:2FTS	3.91	ng/mL		
	13C2-8:2FTS	3.68	ng/mL		
	13C8-PFOSA	2.34	ng/mL		
	D5-NETFOSA	2.11	ng/mL		
	D3-NMEFOSA	1.91	ng/mL		
	D3-NMEFOSAA	4.01	ng/mL		
	D5-NETFOSAA	4.21	ng/mL		
	D7-NMEFOSE	20.5	ng/mL		
	D9-NETFOSE	19.7	ng/mL		
	13C3-HFPO-DA	7.65	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (9)
Acquired: 2023/01/05 - 20:03

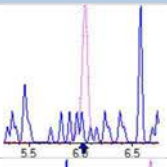
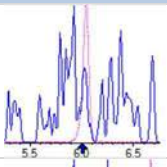
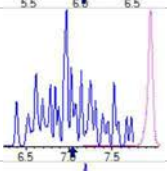
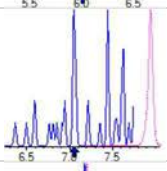
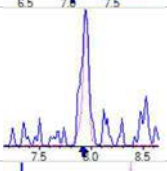
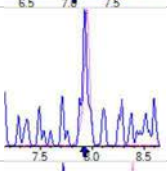
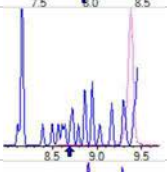
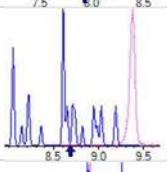
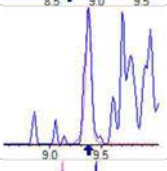
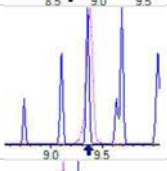
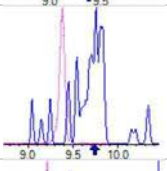
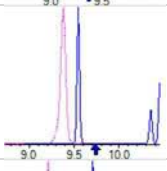
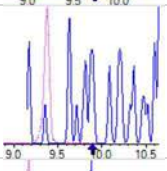
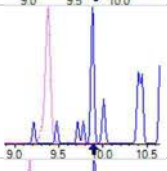
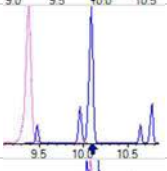
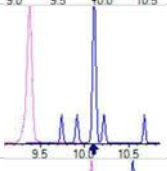
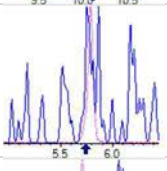
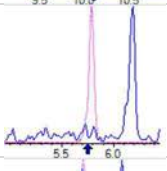
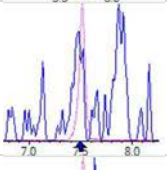
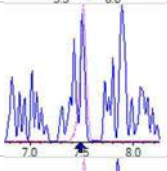
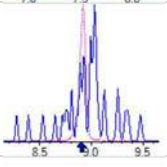
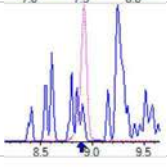
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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.: SC00059-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (9)
Acquired: 2023/01/05 - 20:03

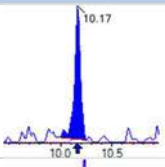
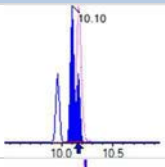
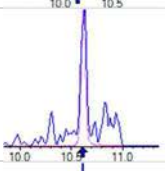
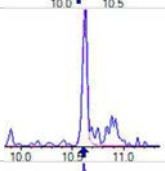
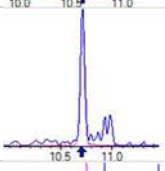
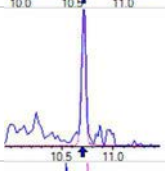
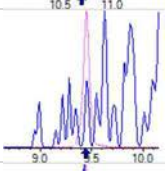
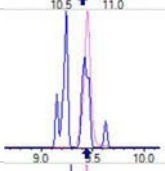
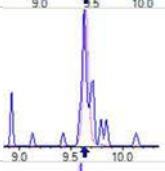
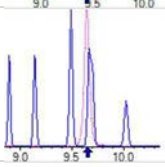
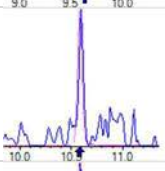
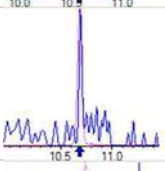
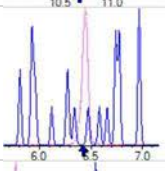
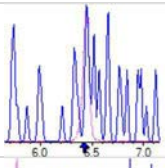
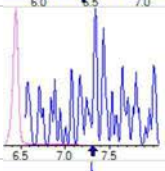
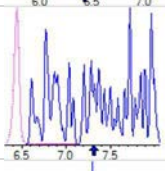
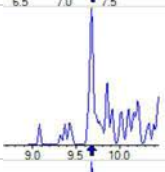
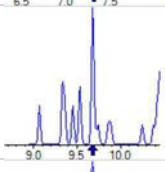
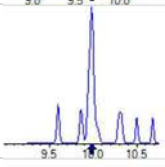
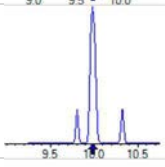
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC00059-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (9)
Acquired: 2023/01/05 - 20:03

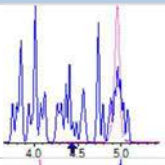
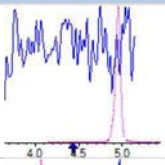
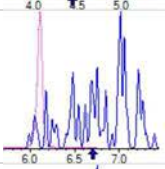
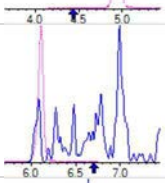
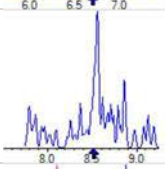
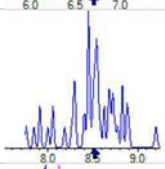
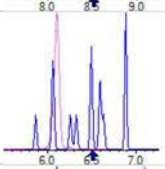
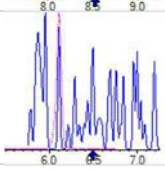
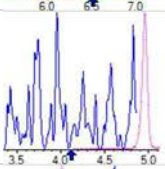
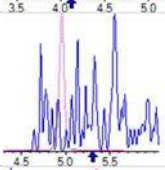
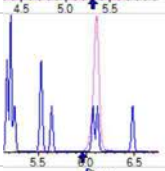
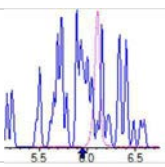
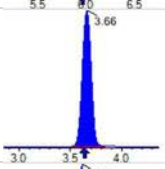
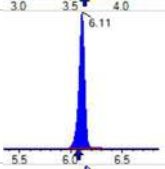
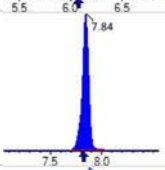
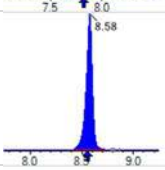
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 18451 (498.0 / 478.0) 659	(10.17 , 1.00) (0.00 , N/A , 3.8)	46.1 4638.9	0.0357 150.7 150.7	0.0180	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.: SC00059-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (9)
Acquired: 2023/01/05 - 20:03

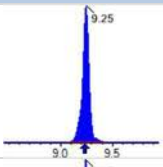
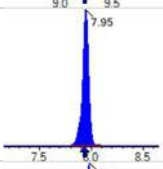
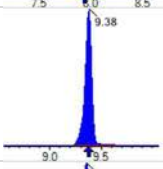
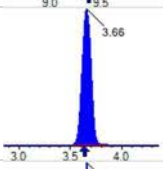
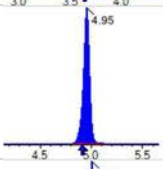
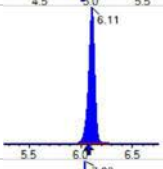
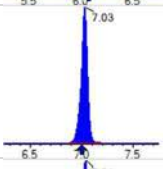
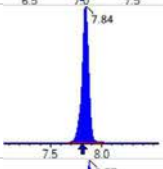
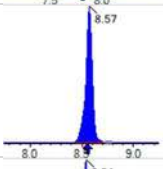
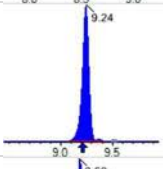
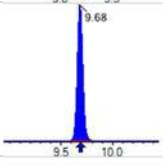
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 160657	(3.66 , N/A) (N/A , 0.03 , N/A)	687.1	N/A	0.9505 [1.0000]	95.0% { 90.9% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 301083	(6.11 , N/A) (N/A , 0.02 , N/A)	451.5	N/A	1.0081 [1.0000]	100.8% { 92.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 329398	(7.84 , N/A) (N/A , 0.01 , N/A)	700.3	N/A	0.9957 [1.0000]	99.6% { 91.3% }			
13C5_PFNA_IIS	(468.0 / 423.0) 262869	(8.58 , N/A) (N/A , 0.01 , N/A)	408.6	N/A	0.9429 [1.0000]	94.3% { 87.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (9)
Acquired: 2023/01/05 - 20:03

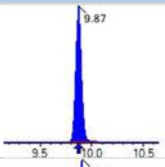
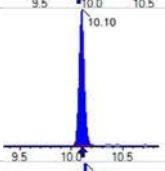
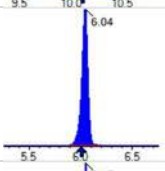
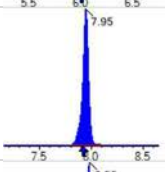
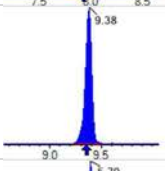
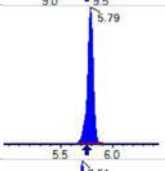
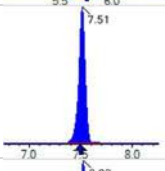
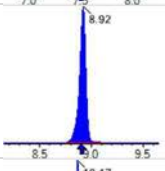
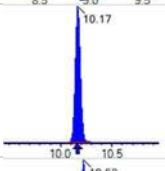
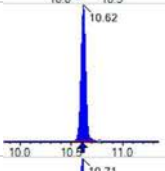
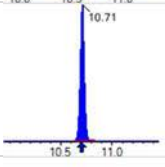
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 275597	(9.25 , N/A) (N/A , 0.01 , N/A)	512.5	N/A	0.8814 [1.0000]	88.1% { 70.4% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 569591	(7.95 , N/A) (N/A , 0.01 , N/A)	735.0	N/A	0.9698 [1.0000]	97.0% { 99.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 578242	(9.38 , N/A) (N/A , 0.01 , N/A)	399.6	N/A	0.9795 [1.0000]	98.0% { 89.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1291948	(3.66 , N/A) (N/A , 0.03 , N/A)	715.2	N/A	8.0735 [8.0000]	100.9% { 90.2% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 950239	(4.95 , N/A) (N/A , 0.03 , N/A)	592.2	N/A	3.9012 [4.0000]	97.5% { 94.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 603858	(6.11 , N/A) (N/A , 0.02 , N/A)	394.1	N/A	1.9158 [2.0000]	95.8% { 92.3% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 504859	(7.03 , N/A) (N/A , 0.02 , N/A)	565.4	N/A	1.7886 [2.0000]	89.4% { 90.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 615450	(7.84 , N/A) (N/A , 0.01 , N/A)	534.2	N/A	1.8859 [2.0000]	94.3% { 93.4% }			
13C9_PFNA_EIS	(472.0 / 427.0) 271118	(8.57 , N/A) (N/A , 0.01 , N/A)	475.7	N/A	1.0388 [1.0000]	103.9% { 92.2% }			
13C6_PFDA_EIS	(519.0 / 474.0) 376538	(9.24 , N/A) (N/A , 0.01 , N/A)	313.4	N/A	1.1645 [1.0000]	116.4% { 86.5% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 537242	(9.68 , N/A) (N/A , 0.01 , N/A)	538.0	N/A	1.2560 [1.0000]	125.6% { 109.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (9)
Acquired: 2023/01/05 - 20:03

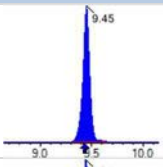
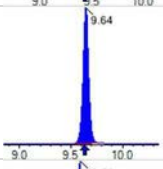
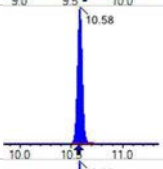
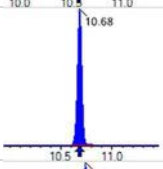
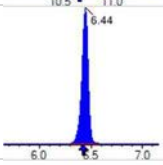
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 432254	(9.87 , N/A) (N/A , 0.01 , N/A)	596.7	N/A	0.9977 [1.0000]	99.8% { 82.2% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 403290	(10.10 , N/A) (N/A , 0.01 , N/A)	30.2	N/A	1.3010 [1.0000]	130.1% { 118.2% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1534512	(6.04 , N/A) (N/A , 0.03 , N/A)	639.7	N/A	1.9358 [2.0000]	96.8% { 92.4% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 985830	(7.95 , N/A) (N/A , 0.01 , N/A)	863.2	N/A	2.0913 [2.0000]	104.6% { 95.2% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1418061	(9.38 , N/A) (N/A , 0.02 , N/A)	560.3	N/A	1.9970 [2.0000]	99.9% { 95.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 636146	(5.79 , N/A) (N/A , 0.03 , N/A)	836.7	N/A	4.7351 [4.0000]	118.4% { 112.8% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 732142	(7.51 , N/A) (N/A , 0.01 , N/A)	527.4	N/A	3.9076 [4.0000]	97.7% { 89.6% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 703782	(8.92 , N/A) (N/A , 0.01 , N/A)	441.2	N/A	3.6799 [4.0000]	92.0% { 87.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1850946	(10.17 , N/A) (N/A , 0.01 , N/A)	873.9	N/A	2.3389 [2.0000]	116.9% { 102.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 333440	(10.62 , N/A) (N/A , 0.01 , N/A)	913.1	N/A	1.9069 [2.0000]	95.3% { 96.6% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 335645	(10.71 , N/A) (N/A , 0.01 , N/A)	998.1	N/A	2.1100 [2.0000]	105.5% { 99.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00059-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-05B (9)
Acquired: 2023/01/05 - 20:03

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 986886	(9.45 , N/A) (N/A , 0.01 , N/A)	273.0	N/A	4.0056 [4.0000]	100.1% { 100.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 900032	(9.64 , N/A) (N/A , 0.01 , N/A)	88.2	N/A	4.2108 [4.0000]	105.3% { 95.2% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 577858	(10.58 , N/A) (N/A , 0.01 , N/A)	1380.4	N/A	20.5130 [20.0000]	102.6% { 98.3% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 252906	(10.68 , N/A) (N/A , 0.01 , N/A)	1095.3	N/A	19.6943 [20.0000]	98.5% { 86.5% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1328078	(6.44 , N/A) (N/A , 0.02 , N/A)	706.8	N/A	7.6476 [8.0000]	95.6% { 91.0% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC00069
Calibration: 2302001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB1	PFBA	0.00	ng/mL	0.75	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	SDG:	
Client:	AECOM	Project:	Red Hill AFFF Assessment Sam
Sequence:	SC00069	Instrument:	Saphira
Calibration:	2302001		

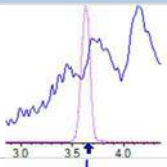
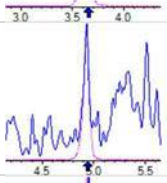
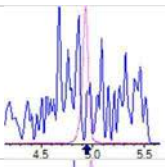
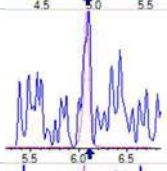
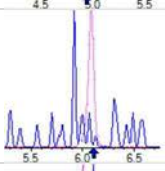
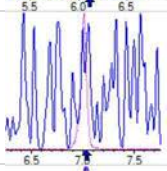
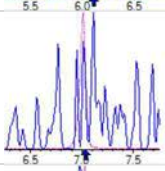
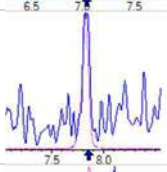
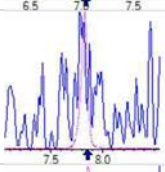
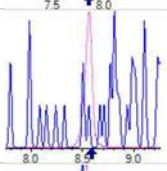
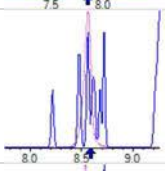
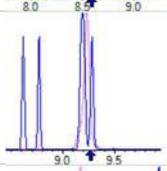
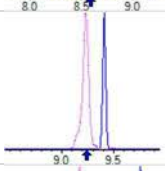
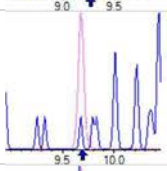
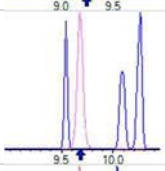
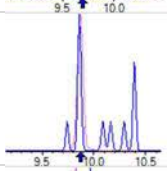
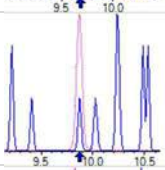
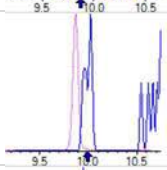
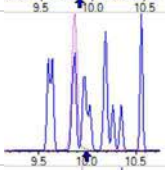
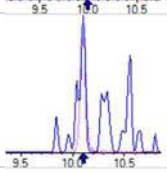
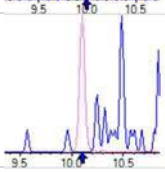
Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB1	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	7.73	ng/mL		
	13C5-PFPEA	3.98	ng/mL		
	13C5-PFHXA	1.91	ng/mL		
	13C4-PFHPA	1.84	ng/mL		
	13C8-PFOA	1.97	ng/mL		
	13C9-PFNA	1.01	ng/mL		
	13C6-PFDA	0.941	ng/mL		
	13C7-PFUnA	0.906	ng/mL		
	13C2-PFDOA	0.781	ng/mL		
	13C2-PFTEDA	0.874	ng/mL		
	13C3-PFBS	2.08	ng/mL		
	13C3-PFHXS	2.17	ng/mL		
	13C8-PFOS	2.01	ng/mL		
	13C2-4:2FTS	4.69	ng/mL		
	13C2-6:2FTS	4.73	ng/mL		
	13C2-8:2FTS	5.04	ng/mL		
	13C8-PFOSA	1.92	ng/mL		
	D5-NETFOSA	1.62	ng/mL		
	D3-NMEFOSA	1.56	ng/mL		
	D3-NMEFOSAA	3.88	ng/mL		
	D5-NETFOSAA	4.87	ng/mL		
	D7-NMEFOSE	18.8	ng/mL		
	D9-NETFOSE	18.8	ng/mL		
	13C3-HFPO-DA	7.48	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (1)
Acquired: 2023/01/06 - 17:11

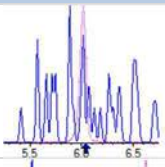
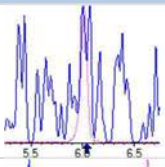
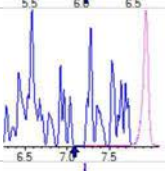
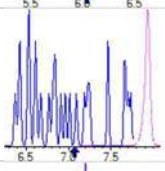
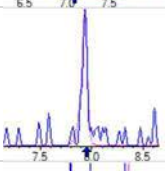
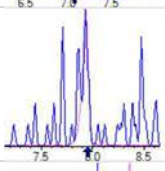
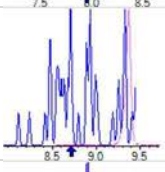
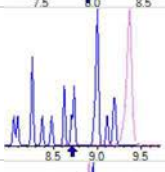
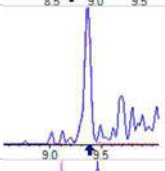
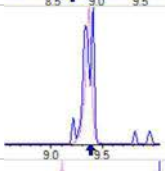
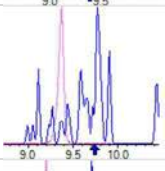
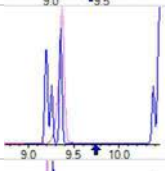
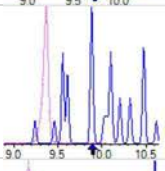
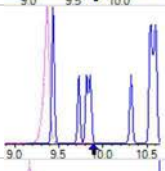
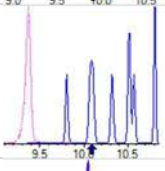
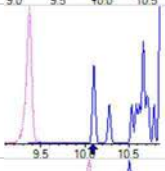
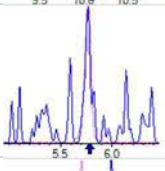
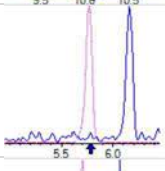
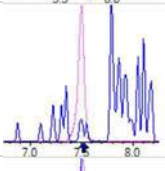
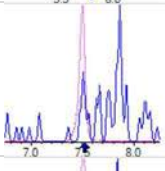
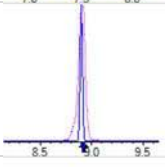
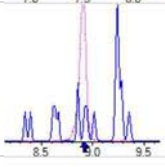
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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.: SC00069-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (1)
Acquired: 2023/01/06 - 17:11

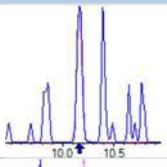
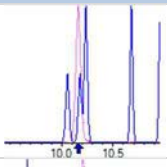
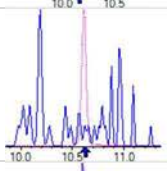
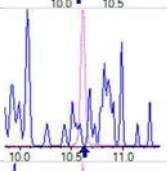
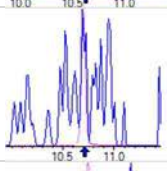
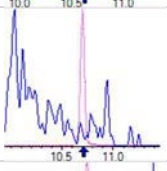
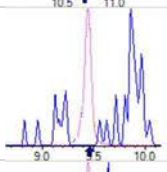
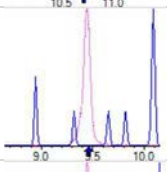
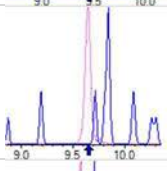
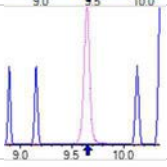
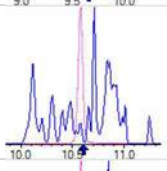
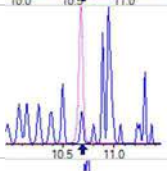
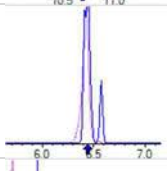
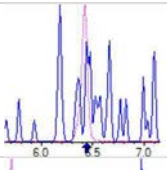
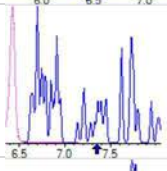
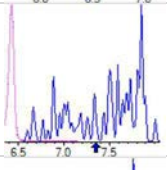
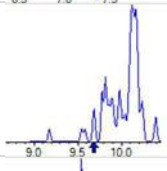
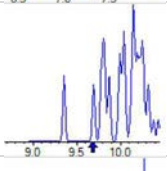
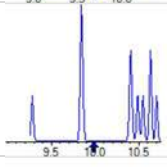
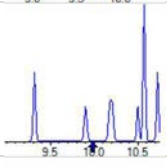
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	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.: SC00069-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (1)
Acquired: 2023/01/06 - 17:11

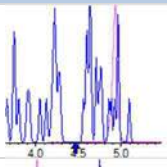
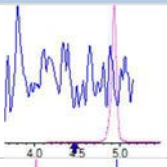
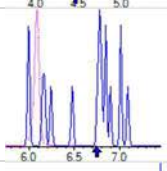
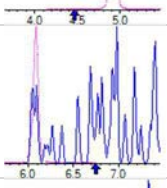
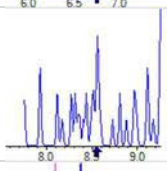
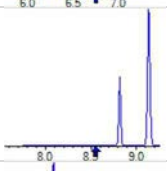
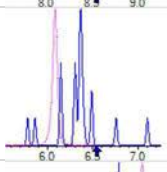
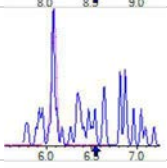
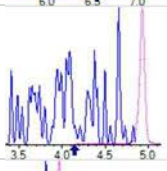
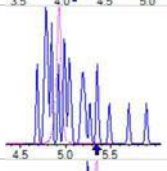
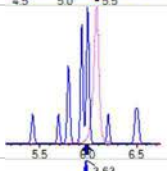
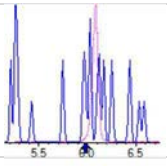
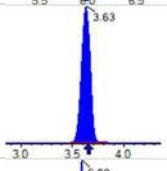
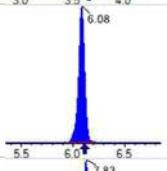
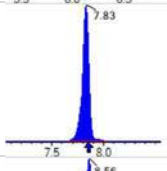
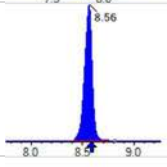
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A 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.: SC00069-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (1)
Acquired: 2023/01/06 - 17:11

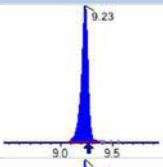
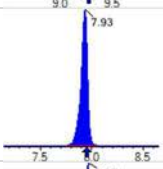
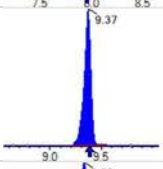
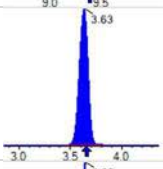
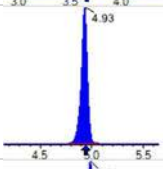
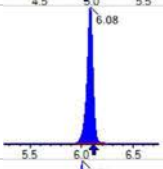
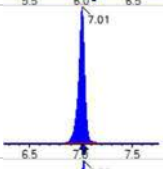
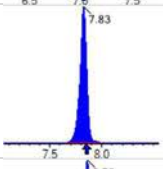
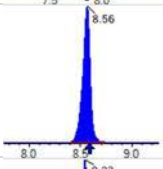
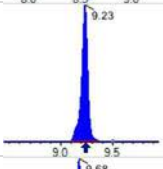
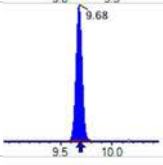
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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			
13C3_PFBA_IIS	(216.0 / 172.0) 174264	(3.63 , N/A) (N/A , -0.02 , N/A)	542.2	N/A	1.0310 [1.0000]	103.1% { 105.7% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 289627	(6.08 , N/A) (N/A , -0.02 , N/A)	469.1	N/A	0.9697 [1.0000]	97.0% { 96.2% }			
13C4_PFOA_IIS	(417.0 / 372.0) 298843	(7.83 , N/A) (N/A , -0.02 , N/A)	470.1	N/A	0.9033 [1.0000]	90.3% { 107.6% }			
13C5_PFNA_IIS	(468.0 / 423.0) 225127	(8.56 , N/A) (N/A , -0.02 , N/A)	467.0	N/A	0.8075 [1.0000]	80.7% { 88.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (1)
Acquired: 2023/01/06 - 17:11

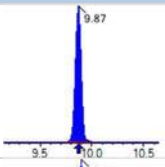
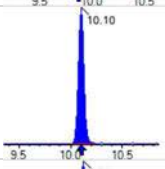
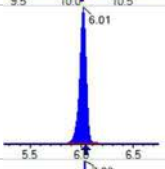
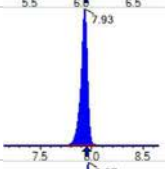
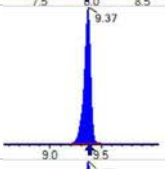
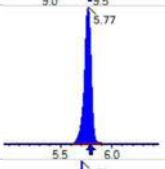
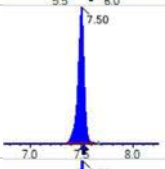
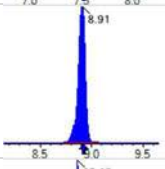
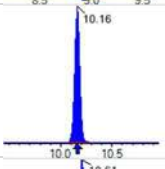
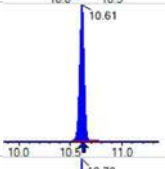
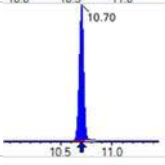
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 291456	(9.23 , N/A) (N/A , -0.02 , N/A)	396.4	N/A	0.9321 [1.0000]	93.2% { 102.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 515452	(7.93 , N/A) (N/A , -0.02 , N/A)	735.2	N/A	0.8777 [1.0000]	87.8% { 92.2% }			
13C4_PFOS_IIS	(503.0 / 79.9) 574678	(9.37 , N/A) (N/A , -0.02 , N/A)	401.4	N/A	0.9735 [1.0000]	97.3% { 120.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1341045	(3.63 , N/A) (N/A , -0.02 , N/A)	693.5	N/A	7.7259 [8.0000]	96.6% { 107.5% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 933074	(4.93 , N/A) (N/A , -0.01 , N/A)	571.1	N/A	3.9822 [4.0000]	99.6% { 110.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 577969	(6.08 , N/A) (N/A , -0.02 , N/A)	511.6	N/A	1.9062 [2.0000]	95.3% { 97.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 499565	(7.01 , N/A) (N/A , -0.02 , N/A)	574.5	N/A	1.8399 [2.0000]	92.0% { 97.2% }			
13C8_PFOA_EIS	(421.0 / 376.0) 583130	(7.83 , N/A) (N/A , -0.02 , N/A)	582.8	N/A	1.9695 [2.0000]	98.5% { 98.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 225828	(8.56 , N/A) (N/A , -0.02 , N/A)	481.4	N/A	1.0103 [1.0000]	101.0% { 93.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 321925	(9.23 , N/A) (N/A , -0.02 , N/A)	377.8	N/A	0.9414 [1.0000]	94.1% { 89.6% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 409946	(9.68 , N/A) (N/A , -0.01 , N/A)	475.8	N/A	0.9063 [1.0000]	90.6% { 101.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (1)
Acquired: 2023/01/06 - 17:11

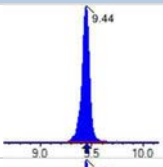
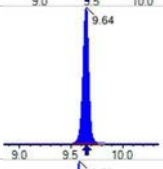
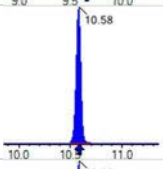
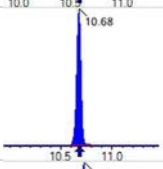
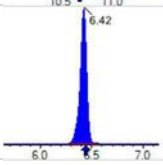
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 357854	(9.87 , N/A) (N/A , 0.00 , N/A)	610.3	N/A	0.7810 [1.0000]	78.1% { 85.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 286504	(10.10 , N/A) (N/A , 0.00 , N/A)	854.2	N/A	0.8740 [1.0000]	87.4% { 97.6% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1495316	(6.01 , N/A) (N/A , -0.02 , N/A)	589.1	N/A	2.0844 [2.0000]	104.2% { 93.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 926596	(7.93 , N/A) (N/A , -0.02 , N/A)	759.7	N/A	2.1721 [2.0000]	108.6% { 92.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1421964	(9.37 , N/A) (N/A , -0.02 , N/A)	673.8	N/A	2.0149 [2.0000]	100.7% { 118.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 569933	(5.77 , N/A) (N/A , -0.01 , N/A)	642.1	N/A	4.6878 [4.0000]	117.2% { 106.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 801810	(7.50 , N/A) (N/A , -0.02 , N/A)	616.3	N/A	4.7290 [4.0000]	118.2% { 126.9% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 871609	(8.91 , N/A) (N/A , -0.01 , N/A)	588.5	N/A	5.0362 [4.0000]	125.9% { 128.5% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1513780	(10.16 , N/A) (N/A , 0.00 , N/A)	1045.2	N/A	1.9247 [2.0000]	96.2% { 101.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 271901	(10.61 , N/A) (N/A , 0.00 , N/A)	735.0	N/A	1.5646 [2.0000]	78.2% { 97.5% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 256579	(10.70 , N/A) (N/A , 0.00 , N/A)	46.1	N/A	1.6230 [2.0000]	81.1% { 103.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (1)
Acquired: 2023/01/06 - 17:11

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, 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
D3_MeFOSAA_EIS	(573.0 / 419.0) 948893	(9.44 , N/A) (N/A , -0.01 , N/A)	349.9	N/A	3.8753 [4.0000]	96.9% { 105.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1035510	(9.64 , N/A) (N/A , -0.01 , N/A)	164.7	N/A	4.8746 [4.0000]	121.9% { 142.3% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 525857	(10.58 , N/A) (N/A , 0.00 , N/A)	857.2	N/A	18.7828 [20.0000]	93.9% { 98.1% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 240286	(10.68 , N/A) (N/A , 0.00 , N/A)	935.2	N/A	18.8276 [20.0000]	94.1% { 117.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1249937	(6.42 , N/A) (N/A , -0.02 , N/A)	674.4	N/A	7.4823 [8.0000]	93.5% { 100.8% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC00069
Calibration: 2302001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB2	PFBA	0.00	ng/mL	0.75	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: SC00069
Calibration: 2302001

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

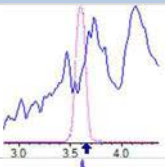
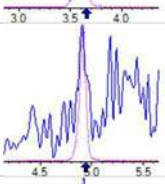
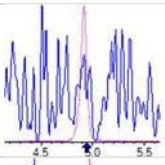
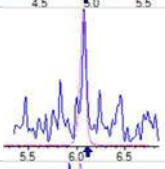
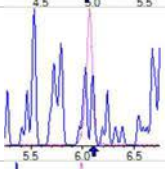
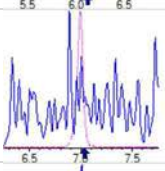
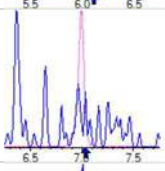
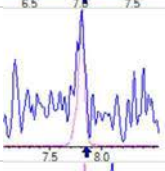
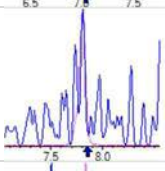
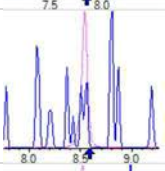
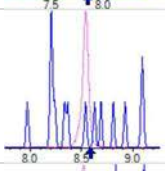
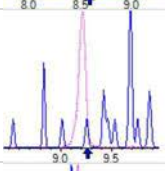
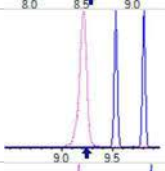
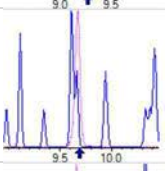
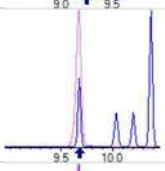
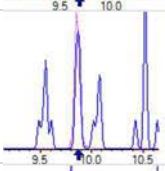
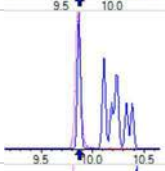
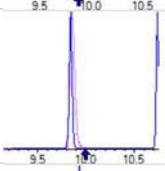
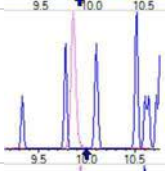
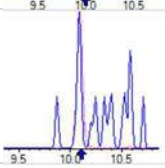
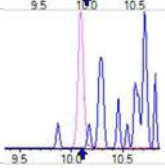
Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB2	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	7.58	ng/mL		
	13C5-PFPEA	3.70	ng/mL		
	13C5-PFHXA	2.10	ng/mL		
	13C4-PFHPA	2.15	ng/mL		
	13C8-PFOA	2.05	ng/mL		
	13C9-PFNA	0.929	ng/mL		
	13C6-PFDA	0.945	ng/mL		
	13C7-PFUnA	0.962	ng/mL		
	13C2-PFDOA	0.884	ng/mL		
	13C2-PFTEDA	0.859	ng/mL		
	13C3-PFBS	2.29	ng/mL		
	13C3-PFHXS	2.22	ng/mL		
	13C8-PFOS	2.03	ng/mL		
	13C2-4:2FTS	5.16	ng/mL		
	13C2-6:2FTS	4.51	ng/mL		
	13C2-8:2FTS	4.81	ng/mL		
	13C8-PFOSA	1.83	ng/mL		
	D5-NETFOSA	1.60	ng/mL		
	D3-NMEFOSA	1.64	ng/mL		
	D3-NMEFOSAA	4.70	ng/mL		
	D5-NETFOSAA	4.85	ng/mL		
	D7-NMEFOSE	19.3	ng/mL		
	D9-NETFOSE	19.9	ng/mL		
	13C3-HFPO-DA	8.04	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (4)
Acquired: 2023/01/06 - 18:29

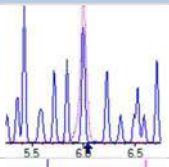
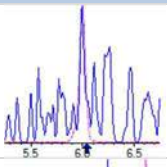
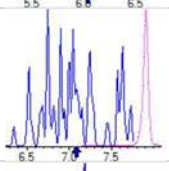
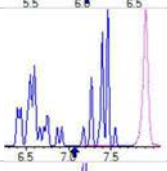
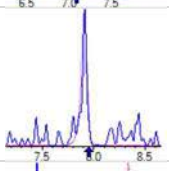
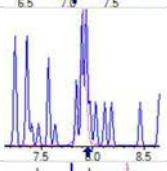
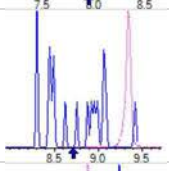
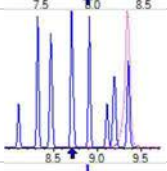
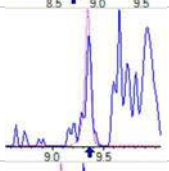
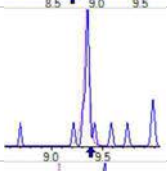
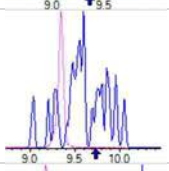
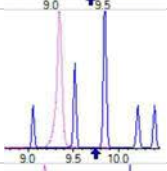
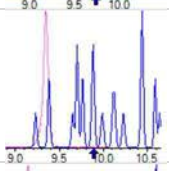
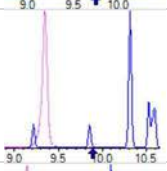
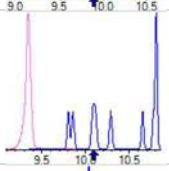
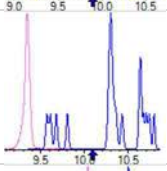
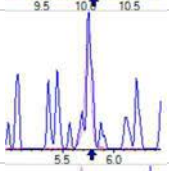
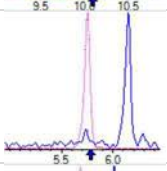
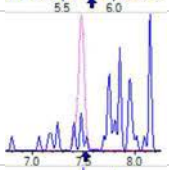
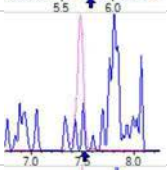
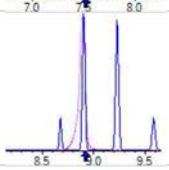
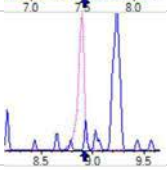
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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.: SC00069-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (4)
Acquired: 2023/01/06 - 18:29

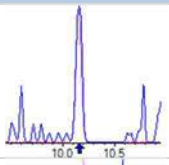
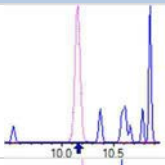
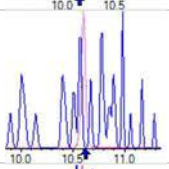
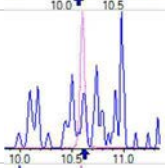
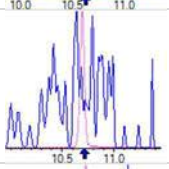
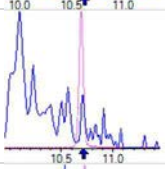
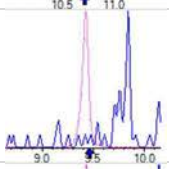
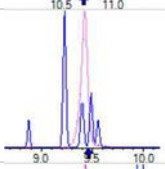
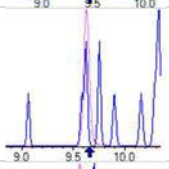
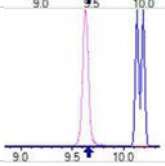
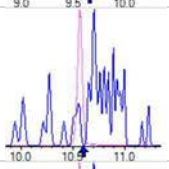
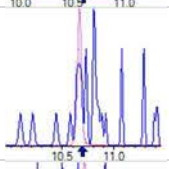
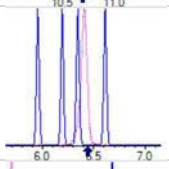
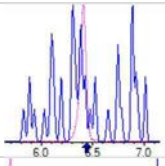
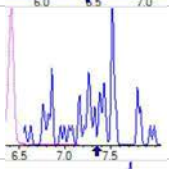
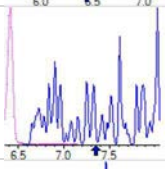
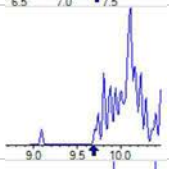
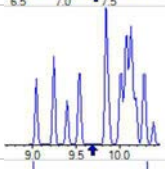
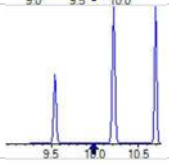
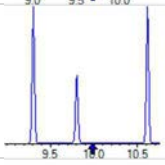
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC00069-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (4)
Acquired: 2023/01/06 - 18:29

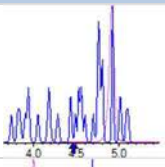
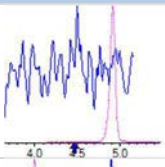
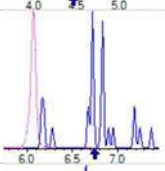
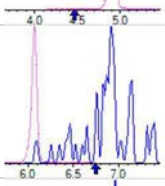
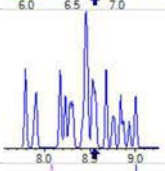
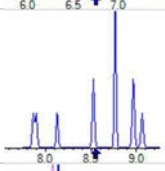
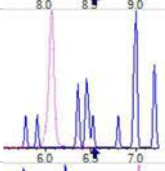
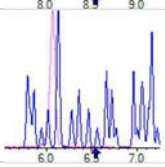
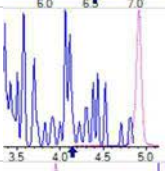
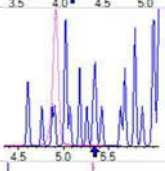
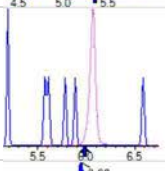
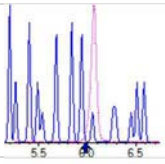
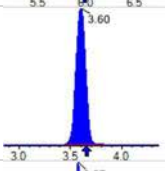
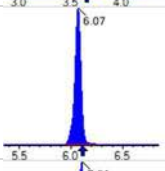
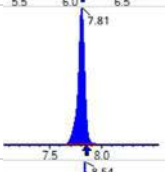
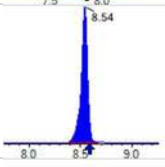
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC00069-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (4)
Acquired: 2023/01/06 - 18:29

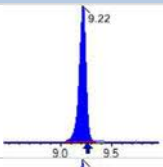
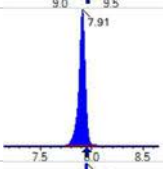
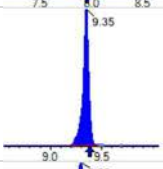
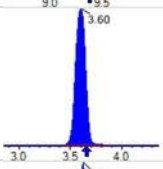
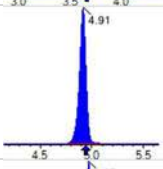
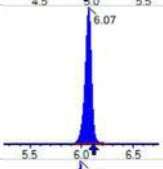
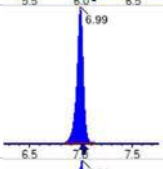
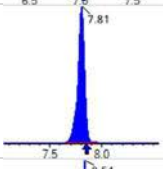
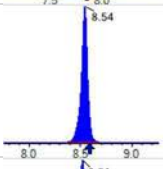
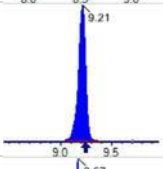
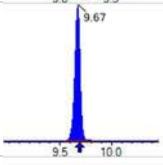
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 153405	(3.60 , N/A) (N/A , -0.05 , N/A)	648.5	N/A	0.9076 [1.0000]	90.8% { 93.1% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 279595	(6.07 , N/A) (N/A , -0.04 , N/A)	543.3	N/A	0.9361 [1.0000]	93.6% { 92.9% }			
13C4_PFOA_IIS	(417.0 / 372.0) 288214	(7.81 , N/A) (N/A , -0.04 , N/A)	719.0	N/A	0.8712 [1.0000]	87.1% { 103.7% }			
13C5_PFNA_IIS	(468.0 / 423.0) 278506	(8.54 , N/A) (N/A , -0.04 , N/A)	431.8	N/A	0.9989 [1.0000]	99.9% { 109.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (4)
Acquired: 2023/01/06 - 18:29

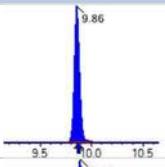
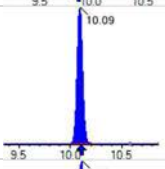
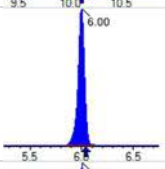
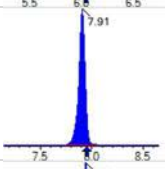
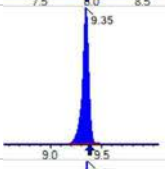
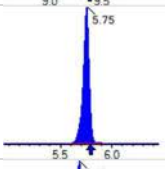
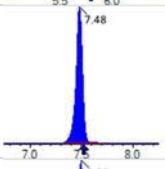
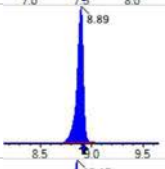
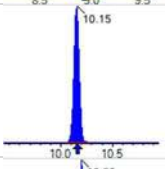
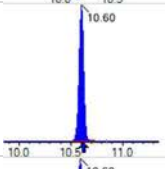
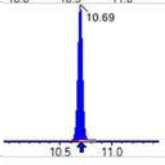
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 326925	(9.22 , N/A) (N/A , -0.03 , N/A)	395.7	N/A	1.0455 [1.0000]	104.6% { 115.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 525744	(7.91 , N/A) (N/A , -0.04 , N/A)	604.6	N/A	0.8952 [1.0000]	89.5% { 94.0% }			
13C4_PFOS_IIS	(503.0 / 79.9) 574741	(9.35 , N/A) (N/A , -0.04 , N/A)	462.1	N/A	0.9736 [1.0000]	97.4% { 120.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1158415	(3.60 , N/A) (N/A , -0.05 , N/A)	454.4	N/A	7.5812 [8.0000]	94.8% { 92.9% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 837582	(4.91 , N/A) (N/A , -0.03 , N/A)	534.6	N/A	3.7029 [4.0000]	92.6% { 99.5% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 613478	(6.07 , N/A) (N/A , -0.04 , N/A)	562.0	N/A	2.0959 [2.0000]	104.8% { 103.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 562670	(6.99 , N/A) (N/A , -0.03 , N/A)	575.0	N/A	2.1466 [2.0000]	107.3% { 109.5% }			
13C8_PFOA_EIS	(421.0 / 376.0) 585431	(7.81 , N/A) (N/A , -0.04 , N/A)	537.0	N/A	2.0502 [2.0000]	102.5% { 98.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 256864	(8.54 , N/A) (N/A , -0.04 , N/A)	585.2	N/A	0.9289 [1.0000]	92.9% { 106.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 362590	(9.21 , N/A) (N/A , -0.03 , N/A)	331.7	N/A	0.9453 [1.0000]	94.5% { 100.9% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 488083	(9.67 , N/A) (N/A , -0.02 , N/A)	405.0	N/A	0.9619 [1.0000]	96.2% { 120.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (4)
Acquired: 2023/01/06 - 18:29

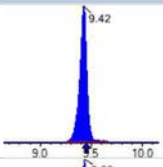
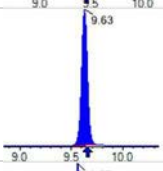
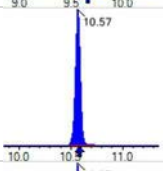
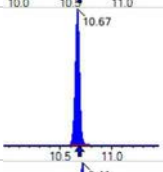
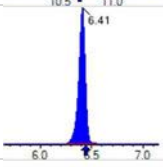
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 454188	(9.86 , N/A) (N/A , -0.01 , N/A)	500.5	N/A	0.8837 [1.0000]	88.4% { 107.9% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 316025	(10.09 , N/A) (N/A , -0.01 , N/A)	552.6	N/A	0.8594 [1.0000]	85.9% { 107.6% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1678912	(6.00 , N/A) (N/A , -0.04 , N/A)	817.7	N/A	2.2946 [2.0000]	114.7% { 104.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 963840	(7.91 , N/A) (N/A , -0.04 , N/A)	730.4	N/A	2.2152 [2.0000]	110.8% { 96.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1435672	(9.35 , N/A) (N/A , -0.04 , N/A)	675.9	N/A	2.0341 [2.0000]	101.7% { 119.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 639356	(5.75 , N/A) (N/A , -0.03 , N/A)	563.4	N/A	5.1559 [4.0000]	128.9% { 118.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 779515	(7.48 , N/A) (N/A , -0.04 , N/A)	554.1	N/A	4.5075 [4.0000]	112.7% { 123.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 849259	(8.89 , N/A) (N/A , -0.03 , N/A)	532.3	N/A	4.8110 [4.0000]	120.3% { 125.2% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1440873	(10.15 , N/A) (N/A , -0.01 , N/A)	997.3	N/A	1.8318 [2.0000]	91.6% { 96.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 284499	(10.60 , N/A) (N/A , -0.01 , N/A)	756.9	N/A	1.6369 [2.0000]	81.8% { 102.0% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 252317	(10.69 , N/A) (N/A , -0.01 , N/A)	33.9	N/A	1.5958 [2.0000]	79.8% { 101.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (4)
Acquired: 2023/01/06 - 18:29

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 1151664	(9.42 , N/A) (N/A , -0.03 , N/A)	319.8	N/A	4.7029 [4.0000]	117.6% { 128.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1029983	(9.63 , N/A) (N/A , -0.02 , N/A)	143.3	N/A	4.8481 [4.0000]	121.2% { 141.5% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 540294	(10.57 , N/A) (N/A , -0.01 , N/A)	651.8	N/A	19.2963 [20.0000]	96.5% { 100.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 254387	(10.67 , N/A) (N/A , -0.01 , N/A)	877.1	N/A	19.9302 [20.0000]	99.7% { 124.2% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1297021	(6.41 , N/A) (N/A , -0.03 , N/A)	674.7	N/A	8.0428 [8.0000]	100.5% { 104.6% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC00069
Calibration: 2302001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB3	PFBA	0.00	ng/mL	0.75	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: SC00069
Calibration: 2302001

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

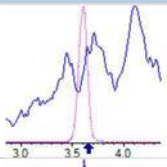
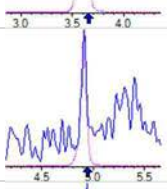
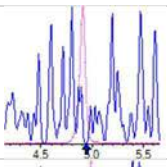
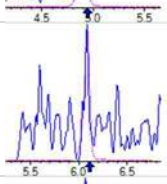
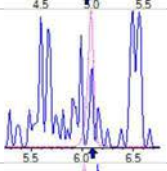
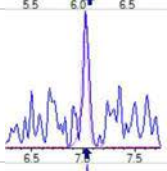
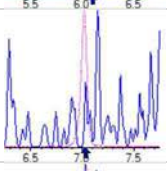
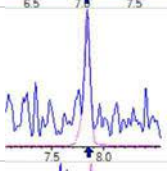
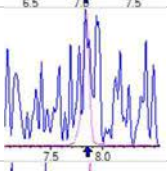
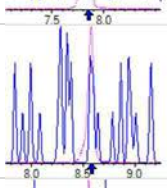
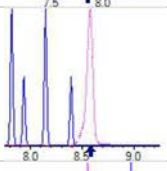
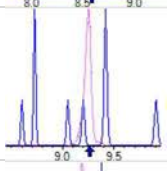
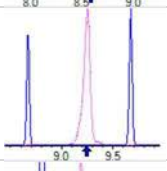
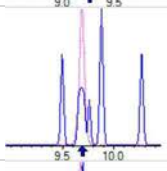
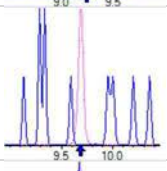
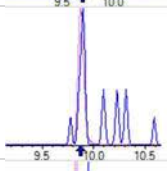
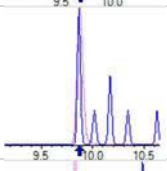
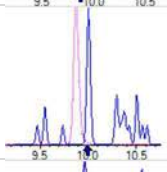
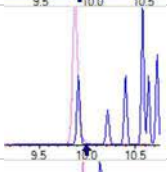
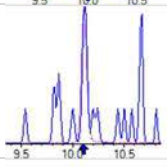
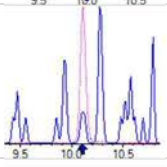
Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB3	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	7.68	ng/mL		
	13C5-PFPEA	3.87	ng/mL		
	13C5-PFHXA	1.90	ng/mL		
	13C4-PFHPA	2.14	ng/mL		
	13C8-PFOA	2.06	ng/mL		
	13C9-PFNA	1.06	ng/mL		
	13C6-PFDA	0.913	ng/mL		
	13C7-PFUnA	1.05	ng/mL		
	13C2-PFDOA	0.764	ng/mL		
	13C2-PFTEDA	0.886	ng/mL		
	13C3-PFBS	2.06	ng/mL		
	13C3-PFHXS	2.16	ng/mL		
	13C8-PFOS	2.02	ng/mL		
	13C2-4:2FTS	4.75	ng/mL		
	13C2-6:2FTS	4.52	ng/mL		
	13C2-8:2FTS	5.21	ng/mL		
	13C8-PFOSA	2.38	ng/mL		
	D5-NETFOSA	1.92	ng/mL		
	D3-NMEFOSA	1.82	ng/mL		
	D3-NMEFOSAA	4.21	ng/mL		
	D5-NETFOSAA	4.92	ng/mL		
	D7-NMEFOSE	24.0	ng/mL		
	D9-NETFOSE	20.6	ng/mL		
	13C3-HFPO-DA	7.79	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (9)
Acquired: 2023/01/06 - 19:33

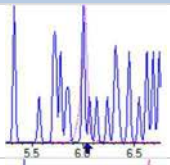
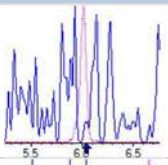
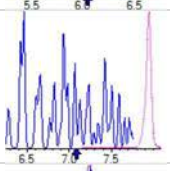
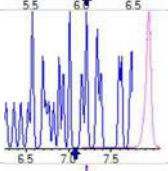
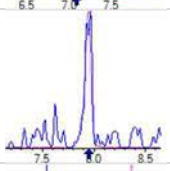
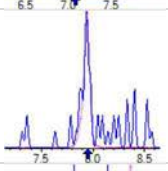
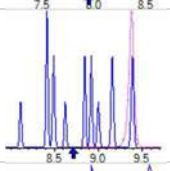
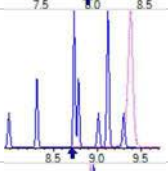
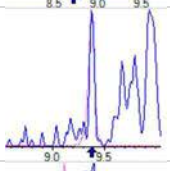
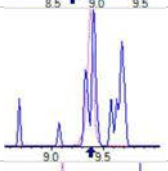
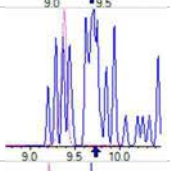
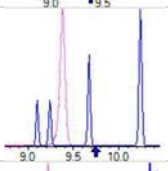
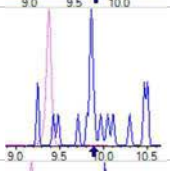
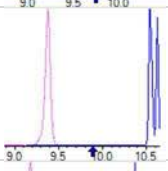
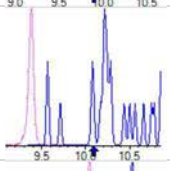
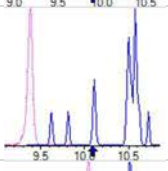
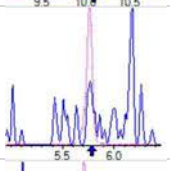
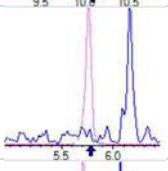
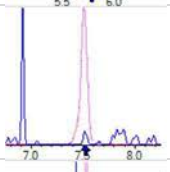
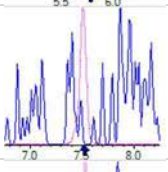
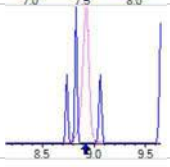
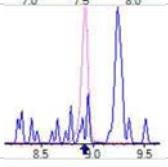
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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.: SC00069-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (9)
Acquired: 2023/01/06 - 19:33

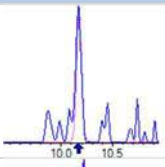
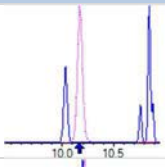
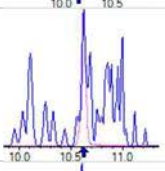
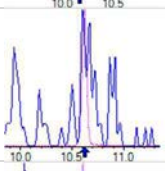
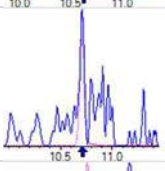
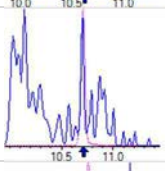
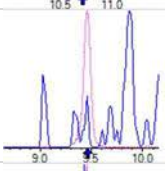
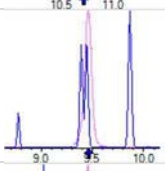
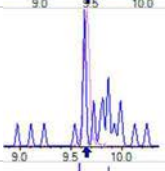
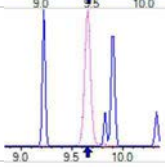
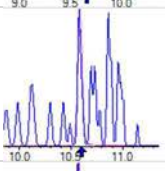
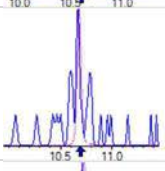
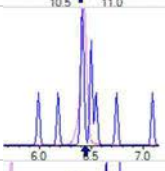
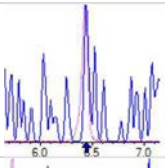
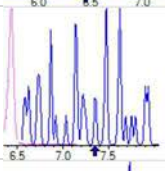
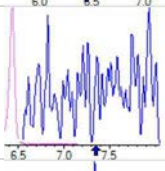
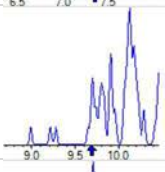
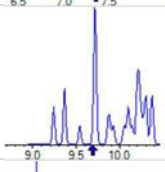
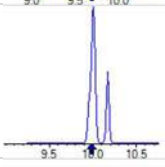
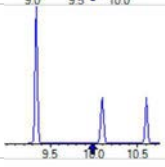
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC00069-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (9)
Acquired: 2023/01/06 - 19:33

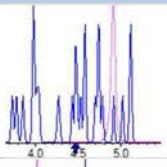
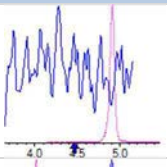
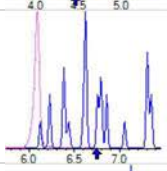
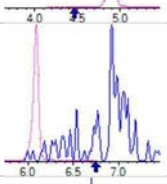
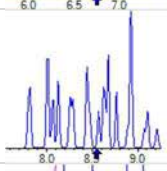
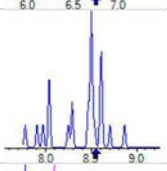
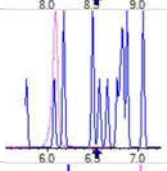
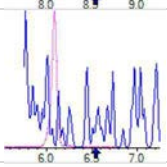
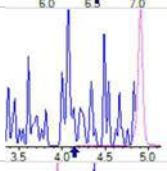
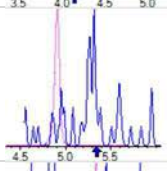
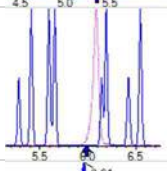
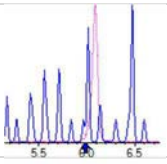
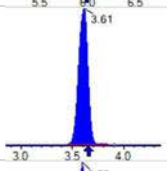
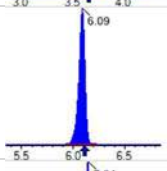
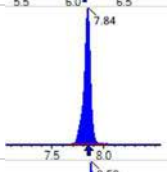
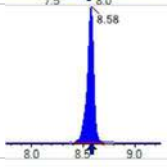
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC00069-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (9)
Acquired: 2023/01/06 - 19:33

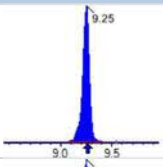
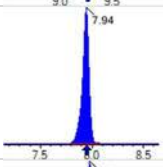
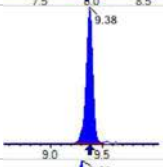
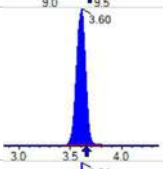
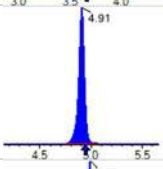
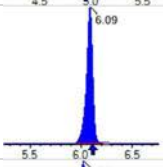
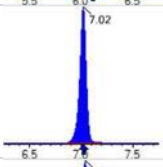
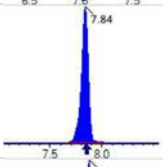
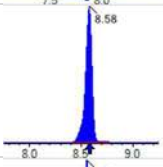
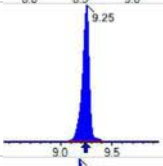
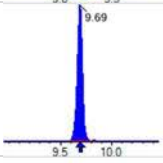
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 157393	(3.61 , N/A) (N/A , -0.05 , N/A)	448.2	N/A	0.9312 [1.0000]	93.1% { 95.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 287031	(6.09 , N/A) (N/A , -0.02 , N/A)	526.0	N/A	0.9610 [1.0000]	96.1% { 95.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 281481	(7.84 , N/A) (N/A , -0.01 , N/A)	550.3	N/A	0.8508 [1.0000]	85.1% { 101.3% }			
13C5_PFNA_IIS	(468.0 / 423.0) 249595	(8.58 , N/A) (N/A , 0.00 , N/A)	456.4	N/A	0.8953 [1.0000]	89.5% { 98.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (9)
Acquired: 2023/01/06 - 19:33

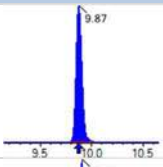
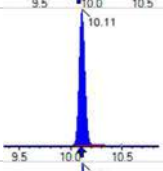
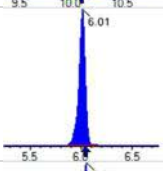
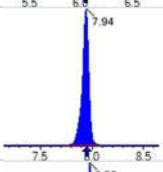
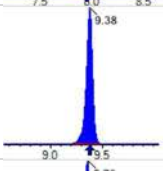
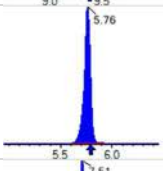
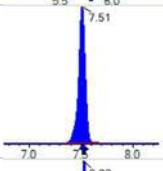
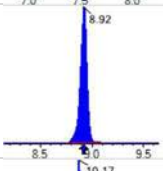
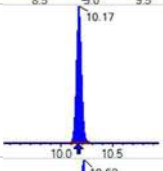
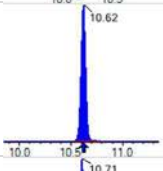
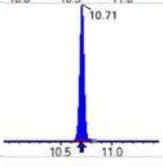
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 320109	(9.25 , N/A) (N/A , 0.00 , N/A)	494.9	N/A	1.0237 [1.0000]	102.4% { 112.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 552833	(7.94 , N/A) (N/A , -0.01 , N/A)	717.8	N/A	0.9413 [1.0000]	94.1% { 98.9% }			
13C4_PFOS_IIS	(503.0 / 79.9) 537722	(9.38 , N/A) (N/A , -0.01 , N/A)	353.0	N/A	0.9109 [1.0000]	91.1% { 112.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1203880	(3.60 , N/A) (N/A , -0.05 , N/A)	598.1	N/A	7.6791 [8.0000]	96.0% { 96.5% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 899777	(4.91 , N/A) (N/A , -0.03 , N/A)	660.1	N/A	3.8748 [4.0000]	96.9% { 106.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 570793	(6.09 , N/A) (N/A , -0.02 , N/A)	439.7	N/A	1.8996 [2.0000]	95.0% { 95.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 575347	(7.02 , N/A) (N/A , -0.01 , N/A)	457.0	N/A	2.1381 [2.0000]	106.9% { 112.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 575287	(7.84 , N/A) (N/A , -0.01 , N/A)	601.6	N/A	2.0629 [2.0000]	103.1% { 96.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 261636	(8.58 , N/A) (N/A , 0.00 , N/A)	401.0	N/A	1.0558 [1.0000]	105.6% { 108.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 342976	(9.25 , N/A) (N/A , 0.00 , N/A)	508.5	N/A	0.9132 [1.0000]	91.3% { 95.5% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 520890	(9.69 , N/A) (N/A , 0.00 , N/A)	555.7	N/A	1.0485 [1.0000]	104.8% { 128.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (9)
Acquired: 2023/01/06 - 19:33

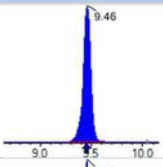
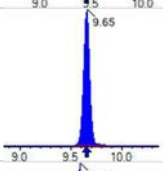
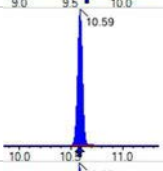
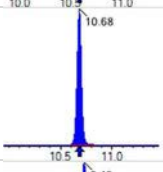
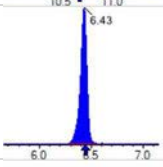
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 384339	(9.87 , N/A) (N/A , 0.00 , N/A)	371.0	N/A	0.7638 [1.0000]	76.4% { 91.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 319055	(10.11 , N/A) (N/A , 0.01 , N/A)	731.5	N/A	0.8861 [1.0000]	88.6% { 108.6% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1582471	(6.01 , N/A) (N/A , -0.02 , N/A)	668.4	N/A	2.0568 [2.0000]	102.8% { 98.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 989503	(7.94 , N/A) (N/A , -0.01 , N/A)	820.3	N/A	2.1627 [2.0000]	108.1% { 98.9% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1334783	(9.38 , N/A) (N/A , 0.00 , N/A)	606.1	N/A	2.0214 [2.0000]	101.1% { 110.8% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 619507	(5.76 , N/A) (N/A , -0.02 , N/A)	454.3	N/A	4.7510 [4.0000]	118.8% { 115.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 821527	(7.51 , N/A) (N/A , -0.01 , N/A)	623.0	N/A	4.5176 [4.0000]	112.9% { 130.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 967485	(8.92 , N/A) (N/A , 0.00 , N/A)	503.4	N/A	5.2121 [4.0000]	130.3% { 142.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1751429	(10.17 , N/A) (N/A , 0.01 , N/A)	1011.1	N/A	2.3799 [2.0000]	119.0% { 117.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 296423	(10.62 , N/A) (N/A , 0.00 , N/A)	585.0	N/A	1.8229 [2.0000]	91.1% { 106.3% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 284046	(10.71 , N/A) (N/A , 0.00 , N/A)	53.3	N/A	1.9202 [2.0000]	96.0% { 114.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (9)
Acquired: 2023/01/06 - 19:33

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 964137	(9.46 , N/A) (N/A , 0.00 , N/A)	479.4	N/A	4.2082 [4.0000]	105.2% { 107.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 977409	(9.65 , N/A) (N/A , 0.00 , N/A)	173.7	N/A	4.9174 [4.0000]	122.9% { 134.3% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 629316	(10.59 , N/A) (N/A , 0.00 , N/A)	1107.8	N/A	24.0230 [20.0000]	120.1% { 117.4% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 246229	(10.68 , N/A) (N/A , 0.00 , N/A)	1140.9	N/A	20.6192 [20.0000]	103.1% { 120.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1289309	(6.43 , N/A) (N/A , -0.01 , N/A)	509.4	N/A	7.7878 [8.0000]	97.3% { 104.0% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC00069
Calibration: 2302001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB4	PFBA	0.00	ng/mL	0.75	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	SDG:	
Client:	AECOM	Project:	Red Hill AFFF Assessment Sam
Sequence:	SC00069	Instrument:	Saphira
Calibration:	2302001		

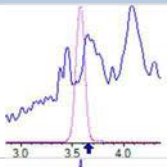
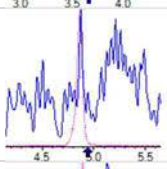
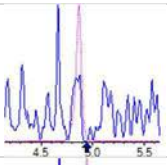
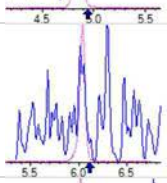
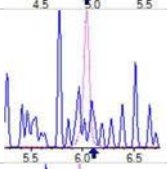
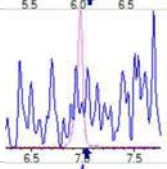
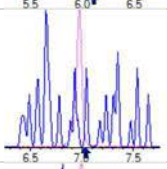
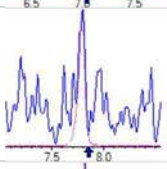
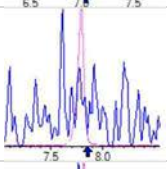
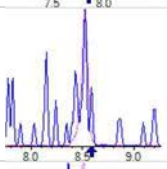
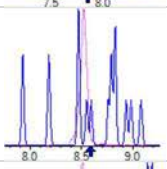
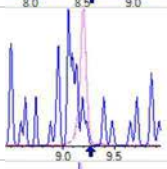
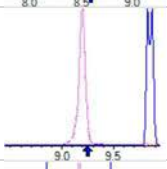
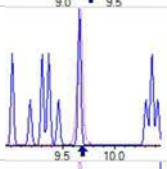
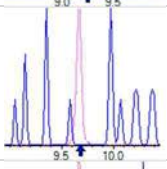
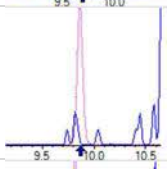
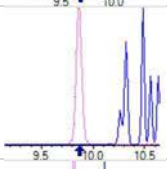
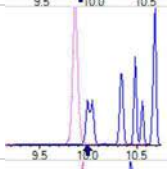
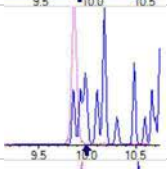
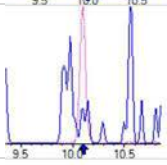
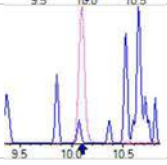
Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB4	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	7.62	ng/mL		
	13C5-PFPEA	3.78	ng/mL		
	13C5-PFHXA	1.96	ng/mL		
	13C4-PFHPA	1.94	ng/mL		
	13C8-PFOA	2.09	ng/mL		
	13C9-PFNA	1.01	ng/mL		
	13C6-PFDA	0.974	ng/mL		
	13C7-PFUnA	1.03	ng/mL		
	13C2-PFDOA	0.979	ng/mL		
	13C2-PFTEDA	0.943	ng/mL		
	13C3-PFBS	1.93	ng/mL		
	13C3-PFHXS	2.01	ng/mL		
	13C8-PFOS	2.11	ng/mL		
	13C2-4:2FTS	5.03	ng/mL		
	13C2-6:2FTS	4.57	ng/mL		
	13C2-8:2FTS	4.20	ng/mL		
	13C8-PFOSA	2.09	ng/mL		
	D5-NETFOSA	1.96	ng/mL		
	D3-NMEFOSA	1.82	ng/mL		
	D3-NMEFOSAA	4.72	ng/mL		
	D5-NETFOSAA	5.21	ng/mL		
	D7-NMEFOSE	19.9	ng/mL		
	D9-NETFOSE	23.7	ng/mL		
	13C3-HFPO-DA	8.37	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (32)
Acquired: 2023/01/07 - 00:30

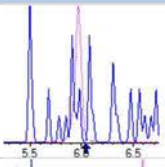
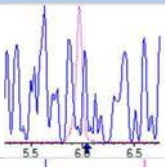
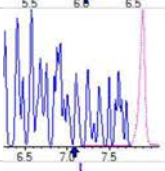
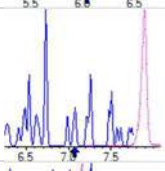
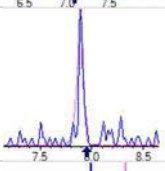
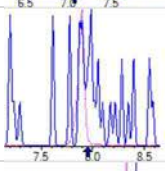
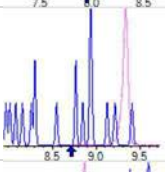
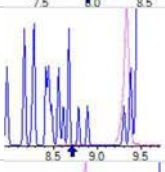
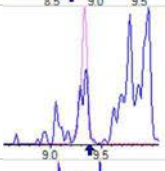
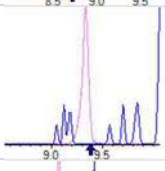
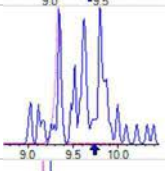
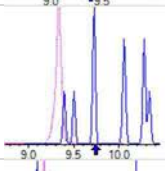
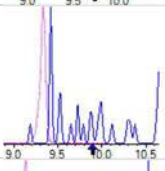
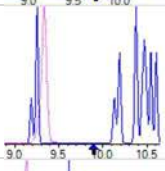
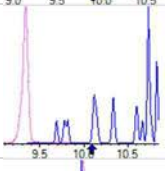
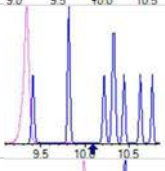
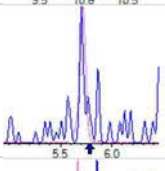
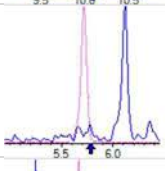
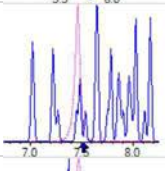
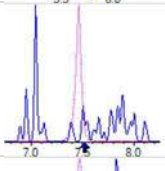
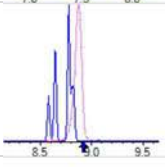
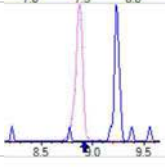
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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.: SC00069-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (32)
Acquired: 2023/01/07 - 00:30

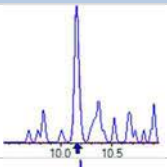
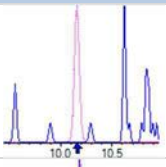
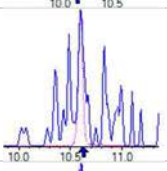
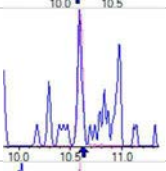
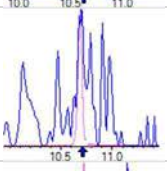
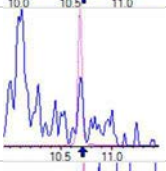
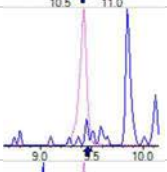
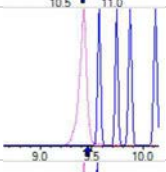
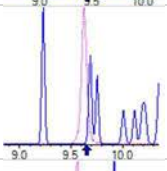
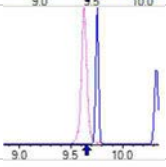
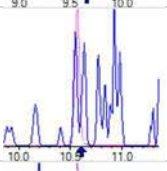
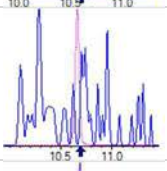
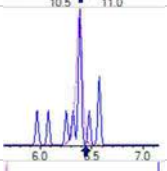
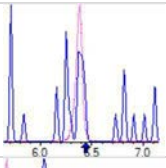
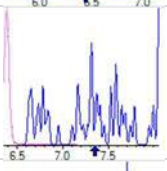
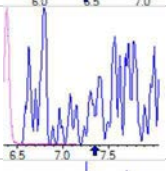
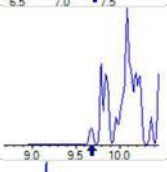
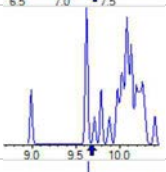
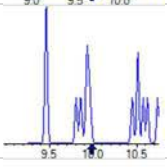
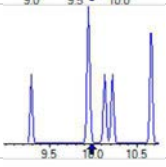
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC00069-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (32)
Acquired: 2023/01/07 - 00:30

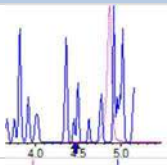
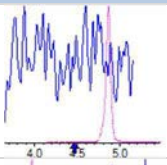
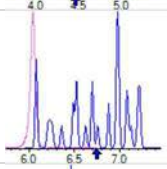
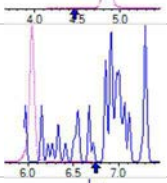
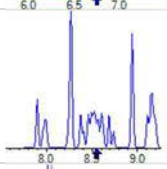
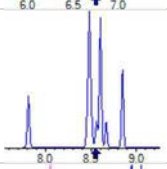
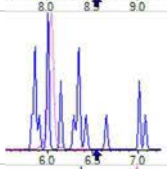
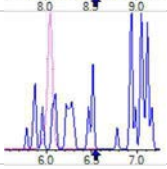
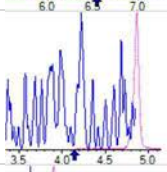
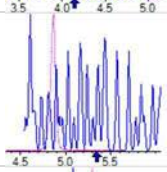
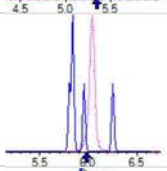
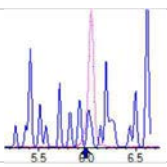
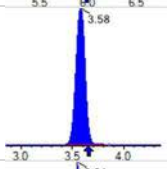
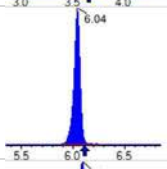
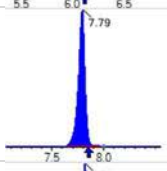
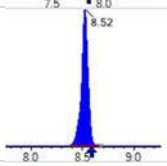
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC00069-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (32)
Acquired: 2023/01/07 - 00:30

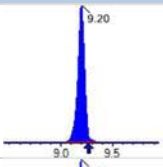
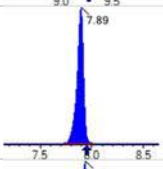
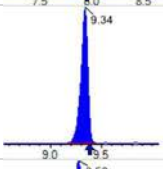
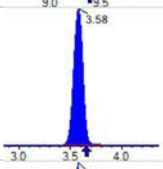
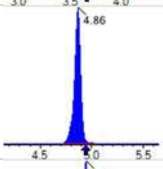
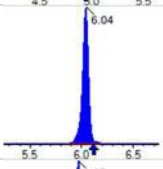
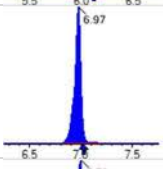
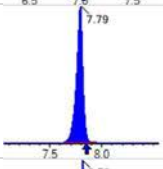
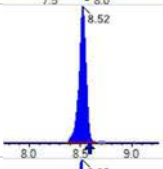
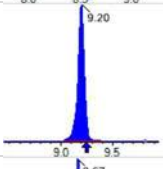
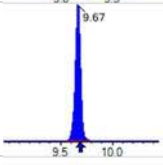
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 152673	(3.58 , N/A) (N/A , -0.07 , N/A)	682.7	N/A	0.9032 [1.0000]	90.3% { 92.6% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 258317	(6.04 , N/A) (N/A , -0.06 , N/A)	450.5	N/A	0.8649 [1.0000]	86.5% { 85.8% }			
13C4_PFOA_IIS	(417.0 / 372.0) 275209	(7.79 , N/A) (N/A , -0.06 , N/A)	428.3	N/A	0.8319 [1.0000]	83.2% { 99.0% }			
13C5_PFNA_IIS	(468.0 / 423.0) 222524	(8.52 , N/A) (N/A , -0.06 , N/A)	537.6	N/A	0.7982 [1.0000]	79.8% { 87.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (32)
Acquired: 2023/01/07 - 00:30

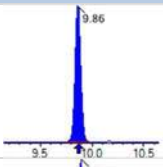
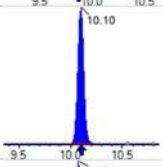
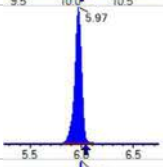
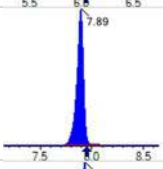
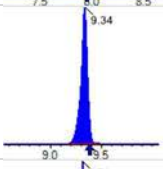
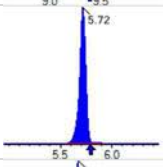
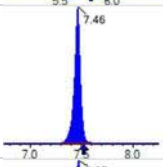
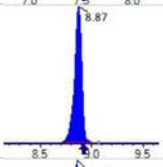
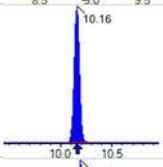
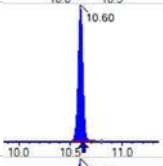
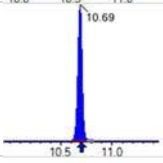
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 304840	(9.20 , N/A) (N/A , -0.05 , N/A)	419.3	N/A	0.9749 [1.0000]	97.5% { 107.3% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 523096	(7.89 , N/A) (N/A , -0.06 , N/A)	731.5	N/A	0.8907 [1.0000]	89.1% { 93.6% }			
13C4_PFOS_IIS	(503.0 / 79.9) 505328	(9.34 , N/A) (N/A , -0.05 , N/A)	457.0	N/A	0.8560 [1.0000]	85.6% { 105.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1158475	(3.58 , N/A) (N/A , -0.07 , N/A)	738.9	N/A	7.6179 [8.0000]	95.2% { 92.9% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 789509	(4.86 , N/A) (N/A , -0.08 , N/A)	556.9	N/A	3.7779 [4.0000]	94.4% { 93.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 529344	(6.04 , N/A) (N/A , -0.07 , N/A)	508.3	N/A	1.9574 [2.0000]	97.9% { 89.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 470595	(6.97 , N/A) (N/A , -0.05 , N/A)	555.9	N/A	1.9432 [2.0000]	97.2% { 91.6% }			
13C8_PFOA_EIS	(421.0 / 376.0) 568944	(7.79 , N/A) (N/A , -0.06 , N/A)	517.8	N/A	2.0866 [2.0000]	104.3% { 95.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 224101	(8.52 , N/A) (N/A , -0.06 , N/A)	380.9	N/A	1.0143 [1.0000]	101.4% { 92.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 348286	(9.20 , N/A) (N/A , -0.05 , N/A)	268.8	N/A	0.9738 [1.0000]	97.4% { 97.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 487172	(9.67 , N/A) (N/A , -0.02 , N/A)	422.0	N/A	1.0297 [1.0000]	103.0% { 120.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (32)
Acquired: 2023/01/07 - 00:30

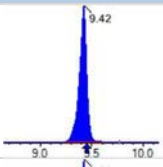
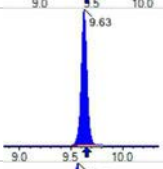
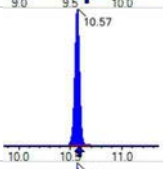
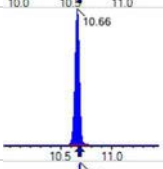
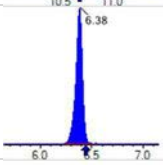
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 469350	(9.86 , N/A) (N/A , 0.00 , N/A)	460.7	N/A	0.9794 [1.0000]	97.9% { 111.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 323232	(10.10 , N/A) (N/A , -0.01 , N/A)	597.7	N/A	0.9427 [1.0000]	94.3% { 110.1% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1404668	(5.97 , N/A) (N/A , -0.07 , N/A)	573.7	N/A	1.9295 [2.0000]	96.5% { 87.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 871061	(7.89 , N/A) (N/A , -0.06 , N/A)	602.4	N/A	2.0121 [2.0000]	100.6% { 87.1% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1312285	(9.34 , N/A) (N/A , -0.05 , N/A)	536.0	N/A	2.1147 [2.0000]	105.7% { 108.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 620759	(5.72 , N/A) (N/A , -0.06 , N/A)	498.7	N/A	5.0312 [4.0000]	125.8% { 115.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 786991	(7.46 , N/A) (N/A , -0.06 , N/A)	843.7	N/A	4.5737 [4.0000]	114.3% { 124.6% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 737637	(8.87 , N/A) (N/A , -0.05 , N/A)	462.0	N/A	4.1998 [4.0000]	105.0% { 108.7% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1447603	(10.16 , N/A) (N/A , 0.00 , N/A)	1063.0	N/A	2.0932 [2.0000]	104.7% { 97.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 277670	(10.60 , N/A) (N/A , -0.02 , N/A)	732.3	N/A	1.8170 [2.0000]	90.9% { 99.6% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 272479	(10.69 , N/A) (N/A , -0.02 , N/A)	34.4	N/A	1.9601 [2.0000]	98.0% { 110.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (32)
Acquired: 2023/01/07 - 00:30

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
D3_MeFOSAA_EIS	(573.0 / 419.0) 1017200	(9.42 , N/A) (N/A , -0.04 , N/A)	424.6	N/A	4.7244 [4.0000]	118.1% { 113.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 972732	(9.63 , N/A) (N/A , -0.03 , N/A)	156.4	N/A	5.2075 [4.0000]	130.2% { 133.6% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 489823	(10.57 , N/A) (N/A , -0.02 , N/A)	791.4	N/A	19.8968 [20.0000]	99.5% { 91.4% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 265738	(10.66 , N/A) (N/A , -0.02 , N/A)	1065.0	N/A	23.6795 [20.0000]	118.4% { 129.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1246388	(6.38 , N/A) (N/A , -0.06 , N/A)	618.7	N/A	8.3654 [8.0000]	104.6% { 100.6% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SC00069
Calibration: 2302001

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

Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB5	PFBA	0.00	ng/mL	0.75	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: SC00069
Calibration: 2302001

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

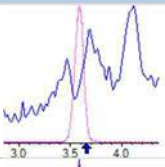
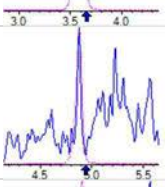
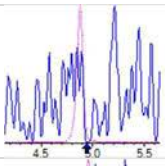
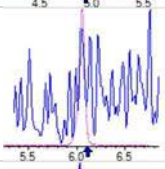
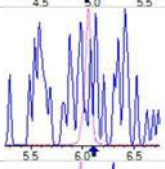
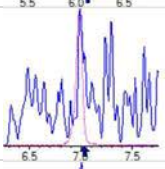
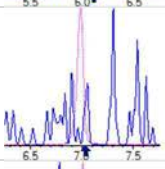
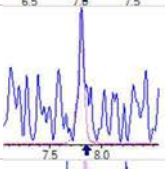
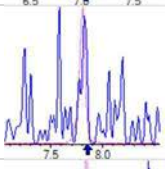
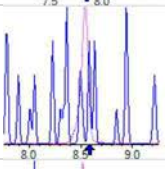
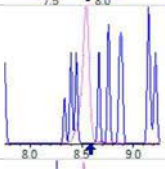
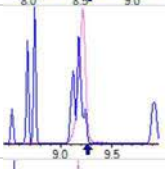
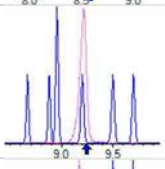
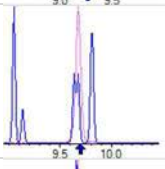
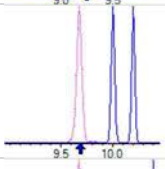
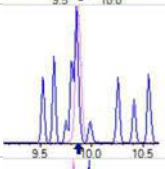
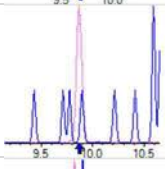
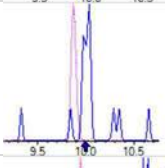
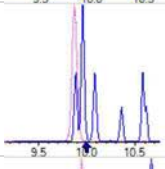
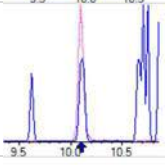
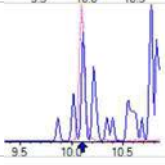
Lab Sample ID	Analyte	Found	Units	RL	C
SC00069-CCB5	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	7.98	ng/mL		
	13C5-PFPEA	3.56	ng/mL		
	13C5-PFHXA	1.91	ng/mL		
	13C4-PFHPA	1.83	ng/mL		
	13C8-PFOA	2.12	ng/mL		
	13C9-PFNA	0.931	ng/mL		
	13C6-PFDA	0.920	ng/mL		
	13C7-PFUnA	1.01	ng/mL		
	13C2-PFDOA	1.08	ng/mL		
	13C2-PFTEDA	0.971	ng/mL		
	13C3-PFBS	2.24	ng/mL		
	13C3-PFHXS	2.03	ng/mL		
	13C8-PFOS	2.00	ng/mL		
	13C2-4:2FTS	5.40	ng/mL		
	13C2-6:2FTS	4.70	ng/mL		
	13C2-8:2FTS	4.75	ng/mL		
	13C8-PFOSA	2.10	ng/mL		
	D5-NETFOSA	1.90	ng/mL		
	D3-NMEFOSA	1.79	ng/mL		
	D3-NMEFOSAA	4.65	ng/mL		
	D5-NETFOSAA	5.00	ng/mL		
	D7-NMEFOSE	21.6	ng/mL		
	D9-NETFOSE	20.9	ng/mL		
	13C3-HFPO-DA	7.40	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (54)
Acquired: 2023/01/07 - 05:13

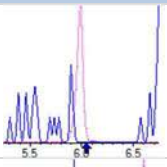
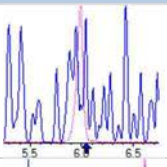
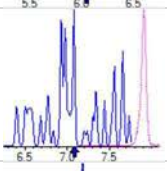
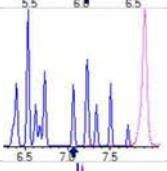
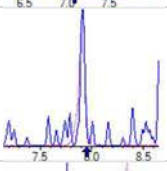
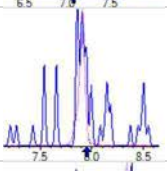
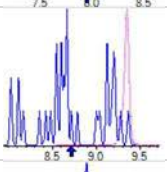
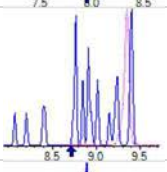
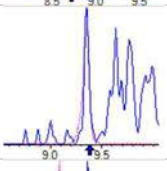
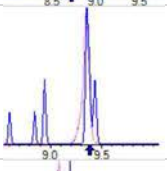
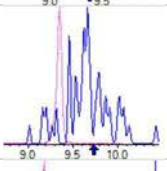
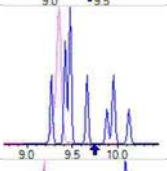
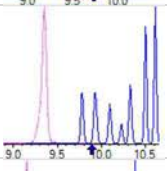
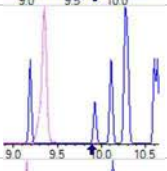
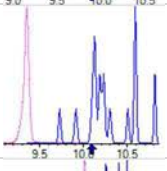
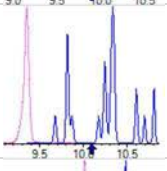
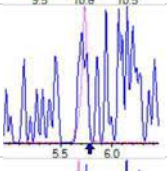
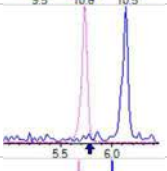
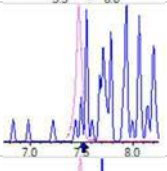
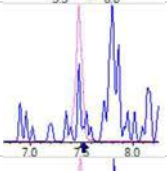
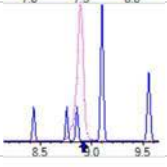
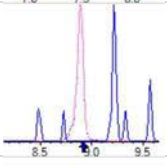
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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.: SC00069-CCB5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (54)
Acquired: 2023/01/07 - 05:13

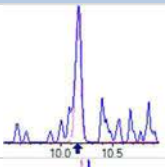
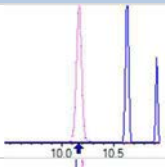
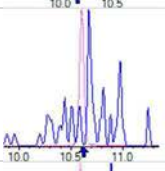
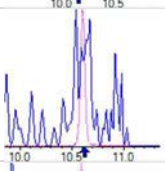
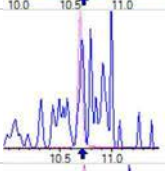
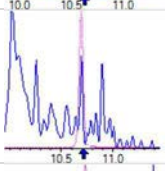
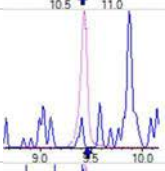
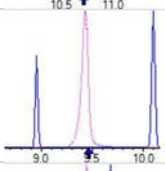
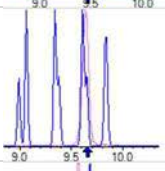
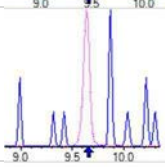
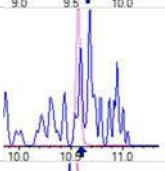
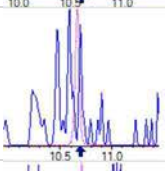
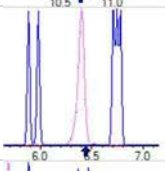
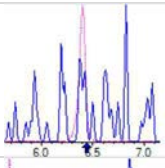
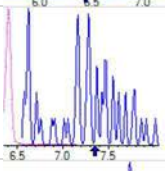
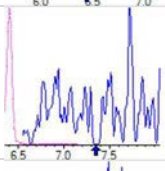
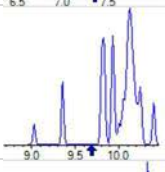
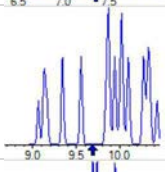
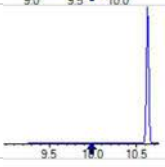
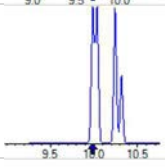
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC00069-CCB5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (54)
Acquired: 2023/01/07 - 05:13

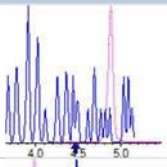
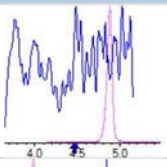
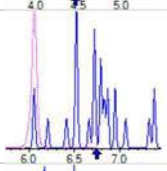
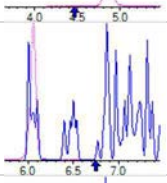
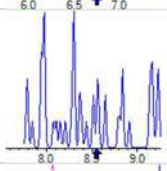
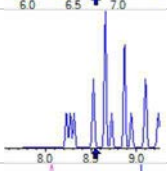
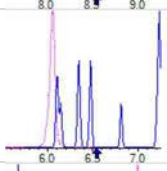
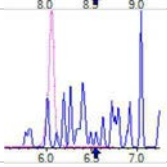
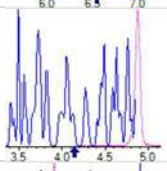
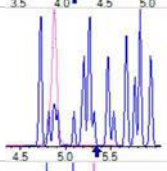
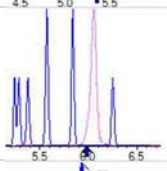
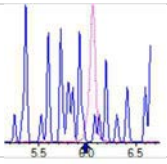
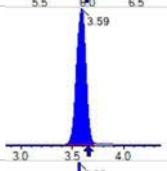
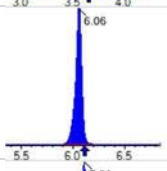
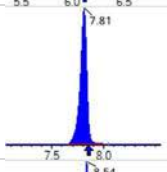
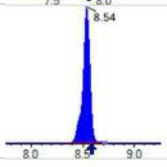
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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.: SC00069-CCB5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (54)
Acquired: 2023/01/07 - 05:13

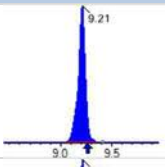
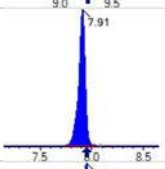
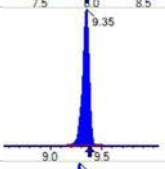
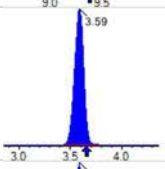
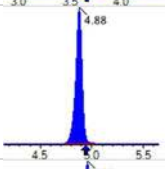
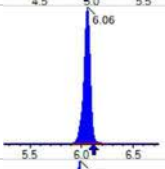
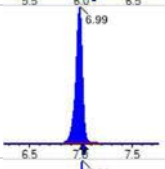
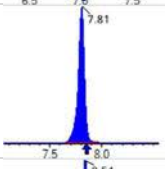
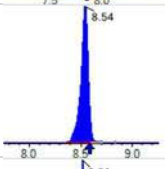
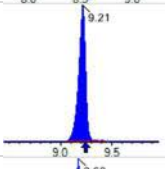
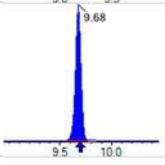
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 125653	(3.59 , N/A) (N/A , -0.06 , N/A)	481.4	N/A	0.7434 [1.0000]	74.3% { 76.2% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 262192	(6.06 , N/A) (N/A , -0.05 , N/A)	538.6	N/A	0.8779 [1.0000]	87.8% { 87.1% }			
13C4_PFOA_IIS	(417.0 / 372.0) 249258	(7.81 , N/A) (N/A , -0.04 , N/A)	584.5	N/A	0.7534 [1.0000]	75.3% { 89.7% }			
13C5_PFNA_IIS	(468.0 / 423.0) 221202	(8.54 , N/A) (N/A , -0.04 , N/A)	432.1	N/A	0.7934 [1.0000]	79.3% { 87.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (54)
Acquired: 2023/01/07 - 05:13

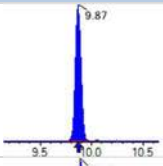
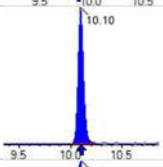
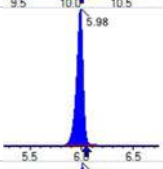
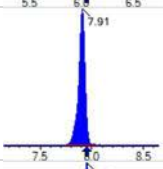
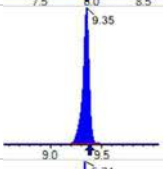
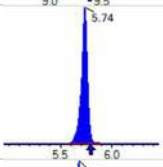
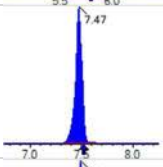
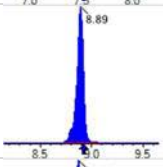
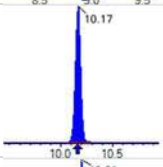
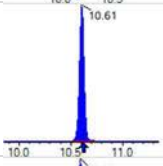
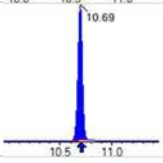
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 292394	(9.21 , N/A) (N/A , -0.04 , N/A)	429.5	N/A	0.9351 [1.0000]	93.5% { 102.9% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 490347	(7.91 , N/A) (N/A , -0.04 , N/A)	668.1	N/A	0.8349 [1.0000]	83.5% { 87.7% }			
13C4_PFOS_IIS	(503.0 / 79.9) 518861	(9.35 , N/A) (N/A , -0.04 , N/A)	420.8	N/A	0.8789 [1.0000]	87.9% { 108.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 998967	(3.59 , N/A) (N/A , -0.06 , N/A)	651.0	N/A	7.9816 [8.0000]	99.8% { 80.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 754610	(4.88 , N/A) (N/A , -0.06 , N/A)	530.2	N/A	3.5576 [4.0000]	88.9% { 89.6% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 524826	(6.06 , N/A) (N/A , -0.05 , N/A)	581.1	N/A	1.9120 [2.0000]	95.6% { 88.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 450058	(6.99 , N/A) (N/A , -0.04 , N/A)	451.4	N/A	1.8310 [2.0000]	91.5% { 87.6% }			
13C8_PFOA_EIS	(421.0 / 376.0) 524257	(7.81 , N/A) (N/A , -0.04 , N/A)	614.5	N/A	2.1229 [2.0000]	106.1% { 88.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 204572	(8.54 , N/A) (N/A , -0.04 , N/A)	387.4	N/A	0.9315 [1.0000]	93.1% { 84.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 315515	(9.21 , N/A) (N/A , -0.03 , N/A)	404.2	N/A	0.9197 [1.0000]	92.0% { 87.8% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 460557	(9.68 , N/A) (N/A , -0.01 , N/A)	510.1	N/A	1.0149 [1.0000]	101.5% { 113.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (54)
Acquired: 2023/01/07 - 05:13

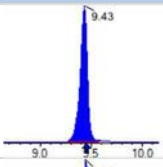
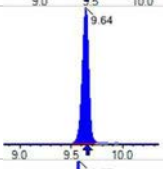
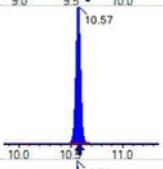
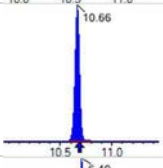
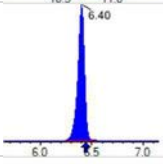
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 495411	(9.87 , N/A) (N/A , 0.00 , N/A)	417.8	N/A	1.0778 [1.0000]	107.8% { 117.6% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 319270	(10.10 , N/A) (N/A , -0.01 , N/A)	633.5	N/A	0.9708 [1.0000]	97.1% { 108.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1531486	(5.98 , N/A) (N/A , -0.05 , N/A)	491.1	N/A	2.2442 [2.0000]	112.2% { 95.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 825038	(7.91 , N/A) (N/A , -0.04 , N/A)	724.1	N/A	2.0330 [2.0000]	101.7% { 82.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1276006	(9.35 , N/A) (N/A , -0.03 , N/A)	656.1	N/A	2.0026 [2.0000]	100.1% { 105.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 624494	(5.74 , N/A) (N/A , -0.05 , N/A)	549.7	N/A	5.3995 [4.0000]	135.0% { 116.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 757744	(7.47 , N/A) (N/A , -0.05 , N/A)	604.2	N/A	4.6979 [4.0000]	117.4% { 120.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 782241	(8.89 , N/A) (N/A , -0.03 , N/A)	465.4	N/A	4.7512 [4.0000]	118.8% { 115.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1494104	(10.17 , N/A) (N/A , 0.00 , N/A)	1111.9	N/A	2.1040 [2.0000]	105.2% { 100.3% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 280725	(10.61 , N/A) (N/A , -0.01 , N/A)	782.9	N/A	1.7891 [2.0000]	89.5% { 100.7% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 271538	(10.69 , N/A) (N/A , -0.01 , N/A)	34.0	N/A	1.9023 [2.0000]	95.1% { 109.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SC00069-CCB5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

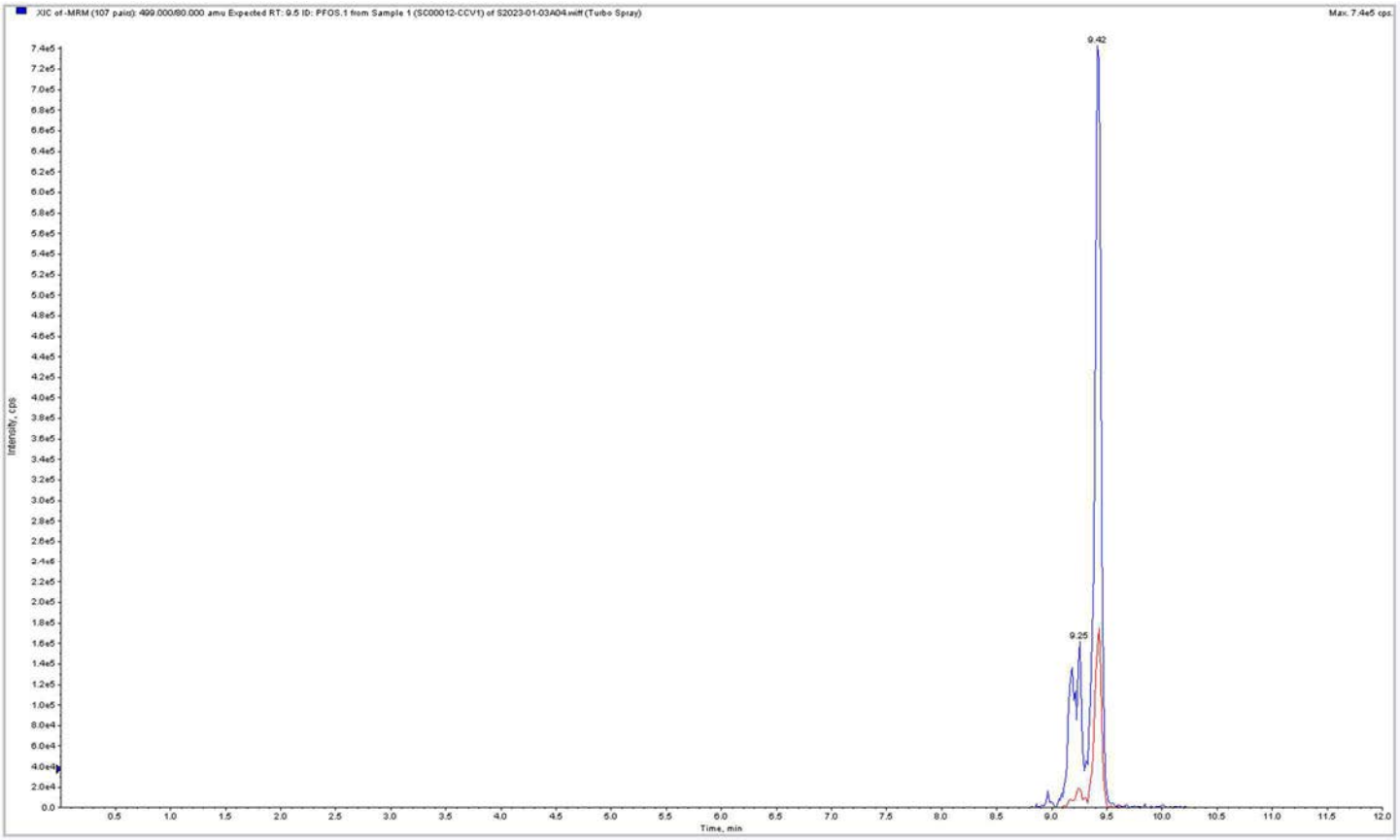
Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (54)
Acquired: 2023/01/07 - 05:13

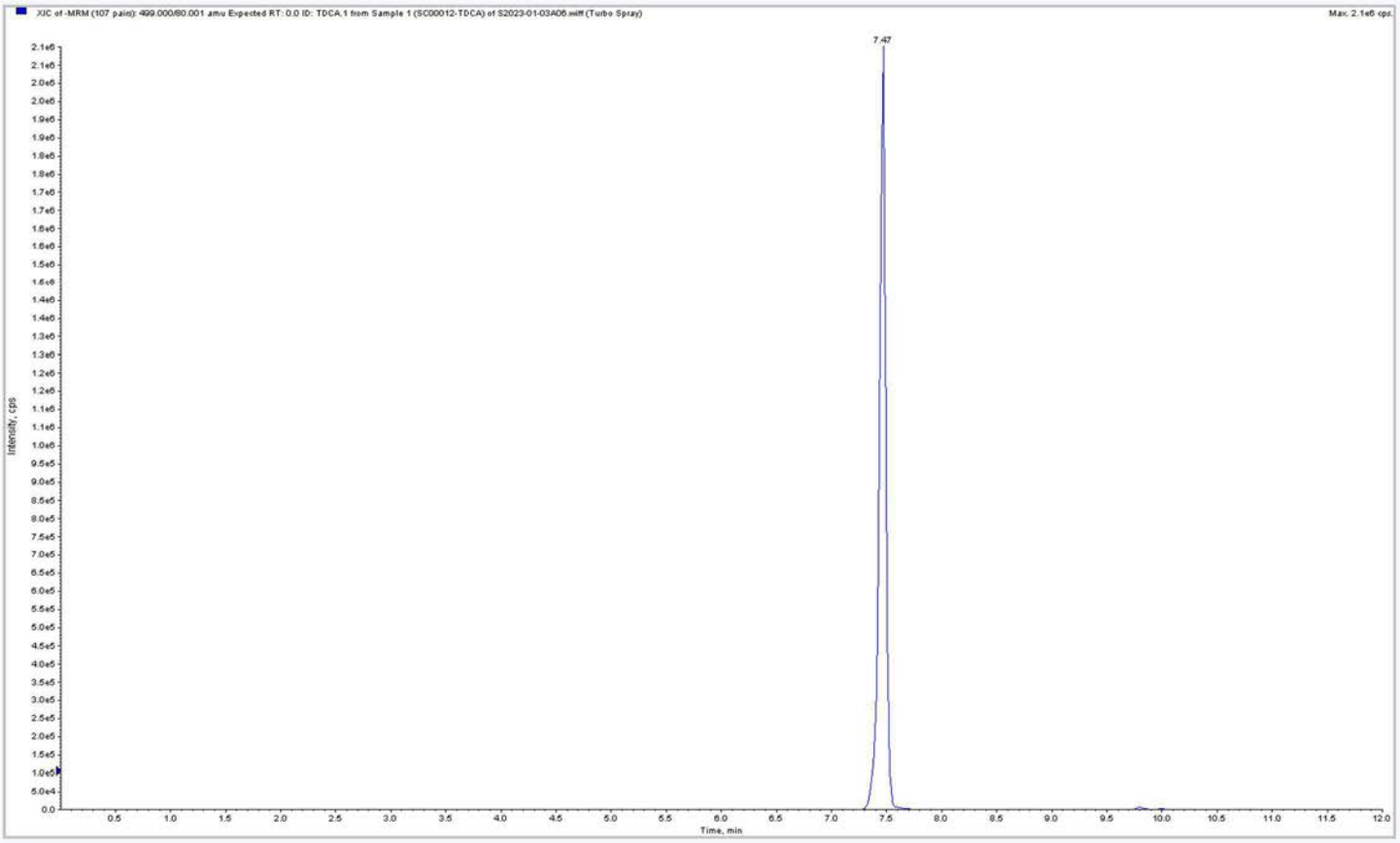
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1027590	(9.43 , N/A) (N/A , -0.02 , N/A)	267.5	N/A	4.6482 [4.0000]	116.2% { 114.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 959359	(9.64 , N/A) (N/A , -0.01 , N/A)	100.2	N/A	5.0020 [4.0000]	125.0% { 131.8% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 546020	(10.57 , N/A) (N/A , -0.01 , N/A)	729.9	N/A	21.6011 [20.0000]	108.0% { 101.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 240609	(10.66 , N/A) (N/A , -0.01 , N/A)	1028.5	N/A	20.8810 [20.0000]	104.4% { 117.5% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1118422	(6.40 , N/A) (N/A , -0.04 , N/A)	571.4	N/A	7.3956 [8.0000]	92.4% { 90.2% }			

PAGE INTENTIONALLY LEFT BLANK

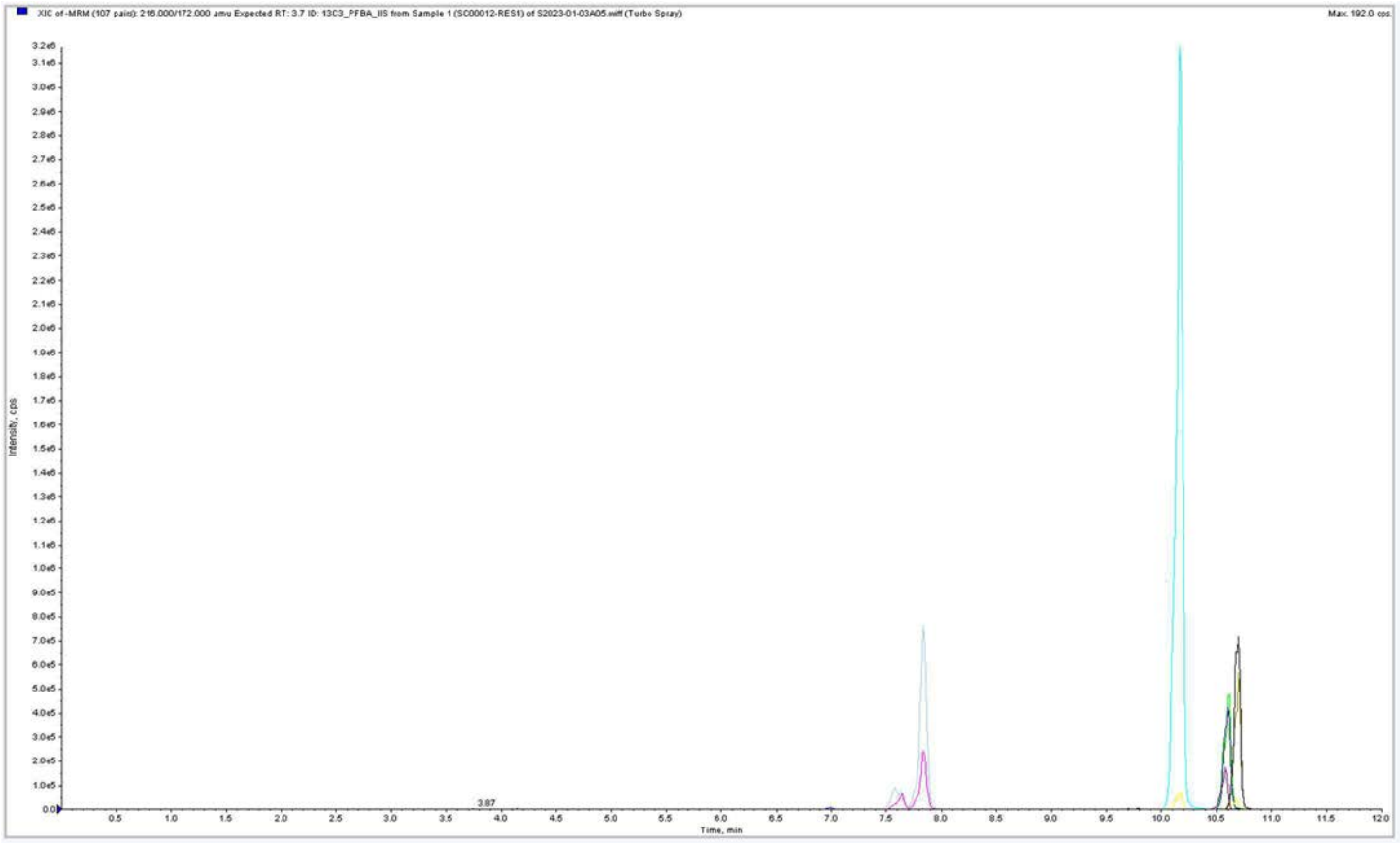
BILE STANDARD CHECK S2023-01-03A/SC00012

TDCA	=	7.47		
PFOS	=	8.95		
TDCA-PFOS	=	1.48	> 1.0	PASS



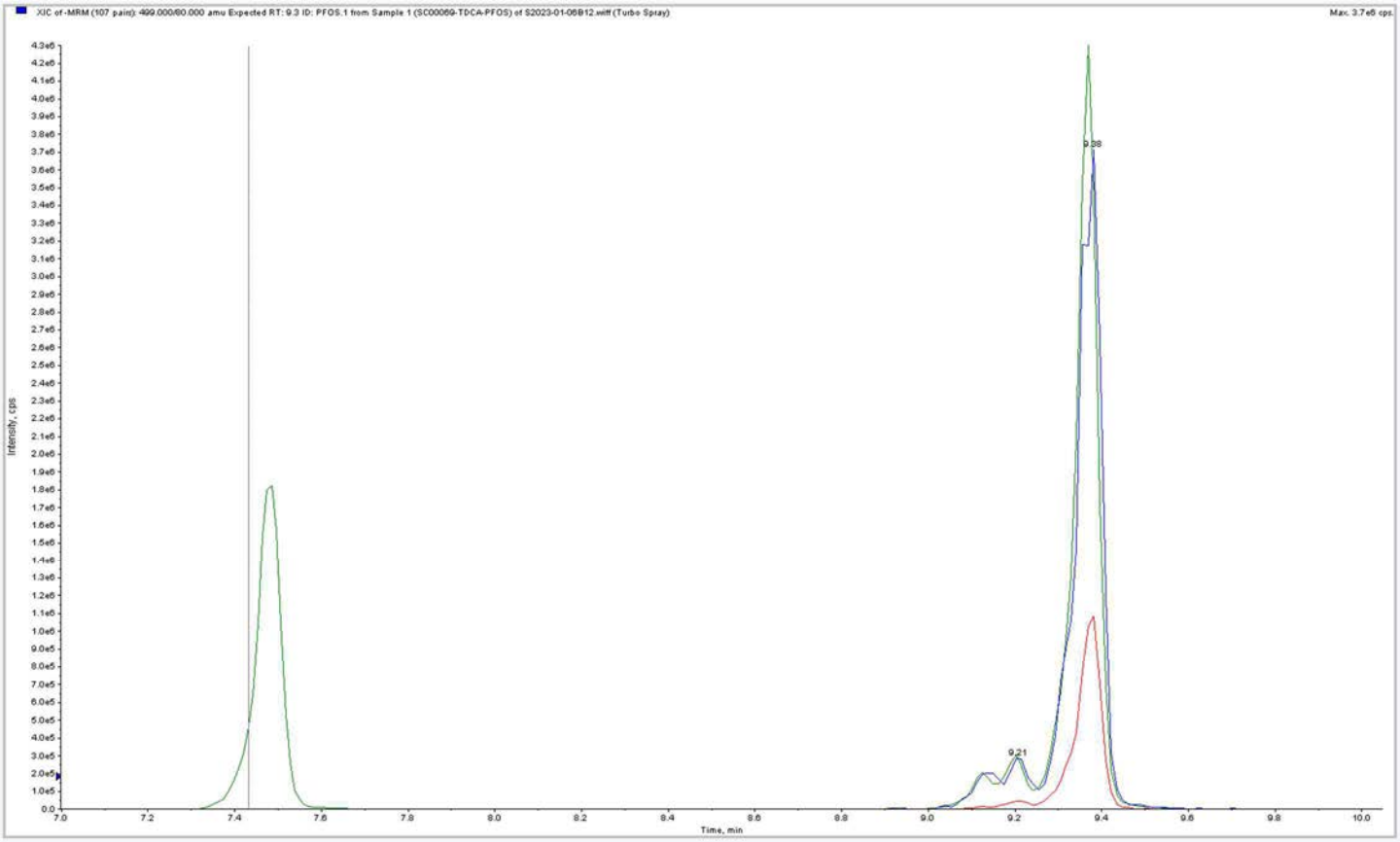


S2023-01-03A/SC00012 Column Resolution

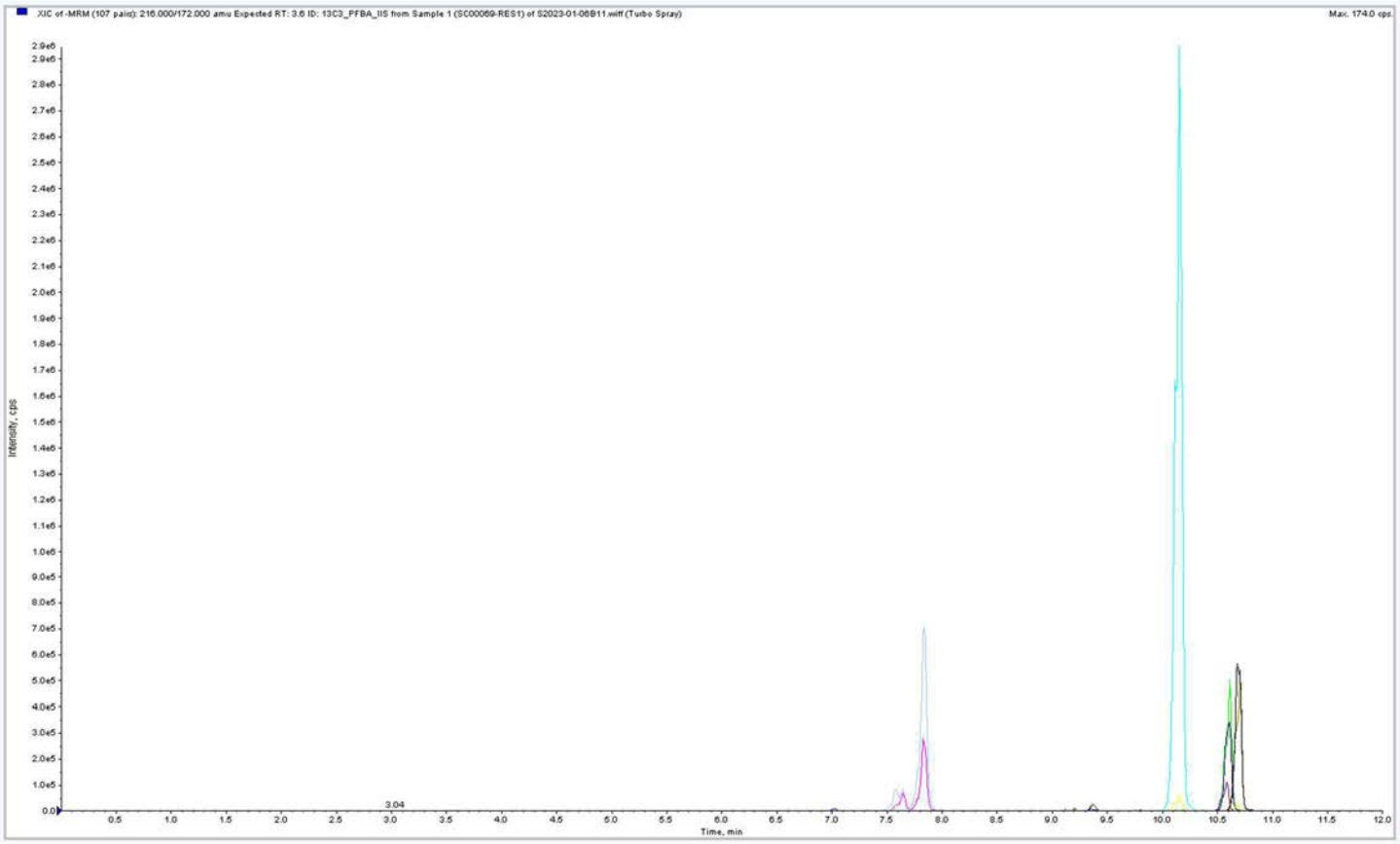


BILE STANDARD CHECK S2023-01-06B/SC00069

TDCA	=	7.50		
PFOS	=	9.10		
TDCA-PFOS	=	1.60	> 1.0	PASS



S2023-01-0B/SC00069 Column Resolution



QUALITY CONTROL RAW DATA

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BCA0031-BLK1	File ID:	S2023-01-06B (10)
Sampled:		Prepared:	01/04/23 07:38	Analyzed:	01/06/23 19:46
Solids:		Preparation:	1633	Dilution:	1
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001
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	0.0550 J	0.40	0.20	0.055	IR2, J
PFHPA	0.20 U	0.40	0.20	0.041	U
PFOA	0.20 U	0.40	0.20	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	0.20 U	0.40	0.20	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	0.20 U	0.40	0.20	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	0.500	0.40	0.20	0.064	B, MI4
PFNS	0.20 U	0.40	0.20	0.12	U
PFDS	0.20 U	0.40	0.20	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:	22L0170
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BCA0031-BLK1	File ID:	S2023-01-06B (10)
Sampled:		Prepared:	01/04/23 07:38	Analyzed:	01/06/23 19:46
Solids:		Preparation:	1633	Dilution:	1
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001
Instrument:	Saphira				
Column:	1				

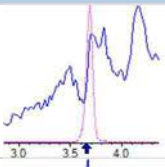
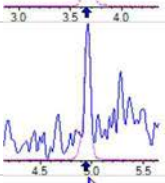
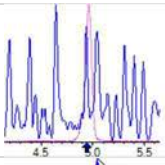
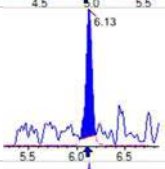
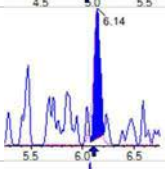
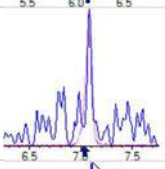
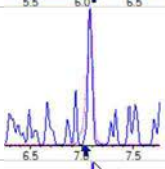
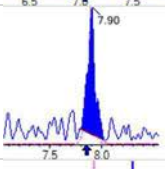
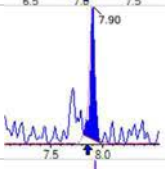
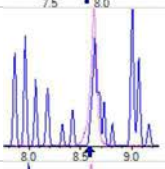
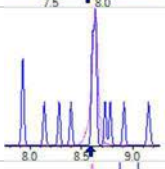
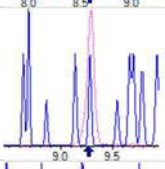
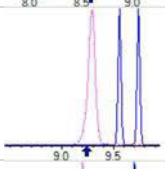
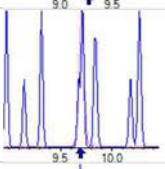
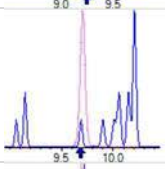
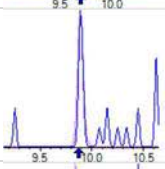
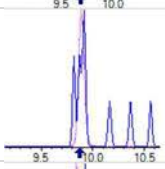
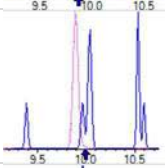
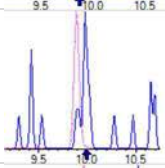
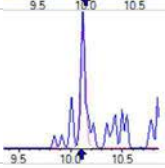
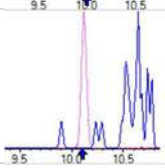
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.40 U	0.80	0.40	0.12	U
PFEESA	0.40 U	0.80	0.40	0.11	U
PFMPA	0.40 U	0.80	0.40	0.054	U
PFMBA	0.40 U	0.80	0.40	0.091	U
NFDHA	0.40 U	0.80	0.40	0.30	U
9CL-PF3ONS	0.40 U	0.80	0.40	0.21	U
11CL-PF3OUDS	0.40 U	0.80	0.40	0.21	U
3:3FTCA	0.80 U	1.6	0.80	0.57	U
5:3FTCA	0.80 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.: BCA0031-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (10)
Acquired: 2023/01/06 - 19:46

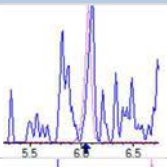
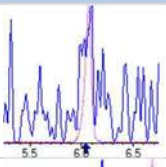
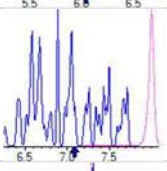
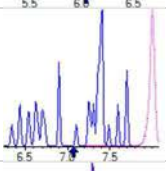
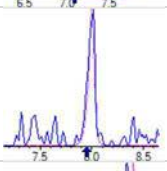
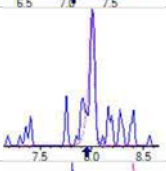
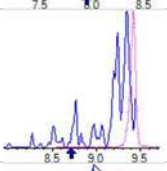
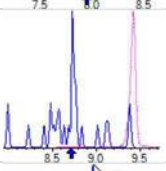
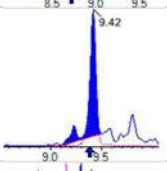
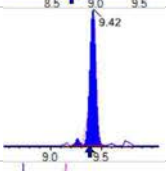
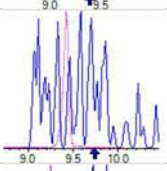
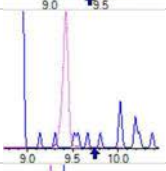
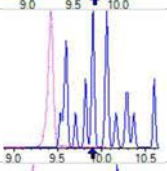
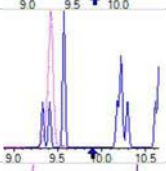
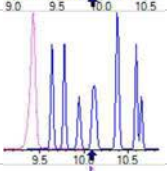
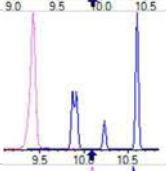
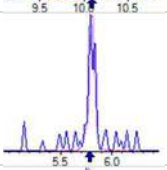
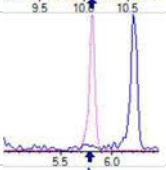
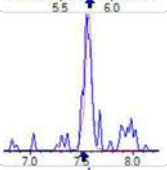
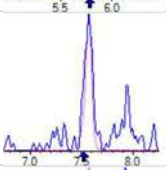
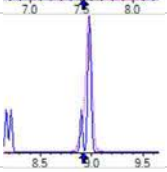
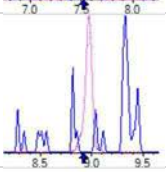
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	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) 4667 (313.0 / 119.0) 1070	(6.13 , 1.00) (-0.01 , N/A , -0.9)	25.9 13.3	0.2293 229.7 220.1	0.0137	N/A			IR2,
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) 11256 (413.0 / 169.0) 3342	(7.90 , 1.00) (0.00 , N/A , -0.2)	25.0 20.7	0.2969 89.6 90.3	0.0263	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.: BCA0031-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (10)
Acquired: 2023/01/06 - 19:46

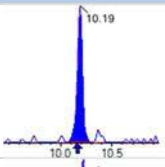
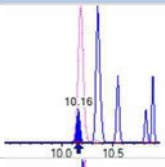
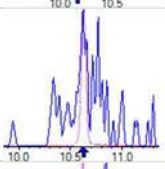
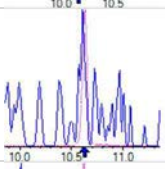
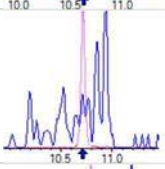
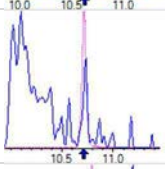
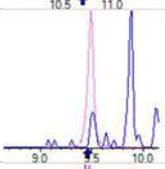
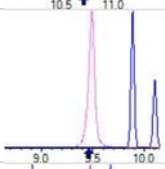
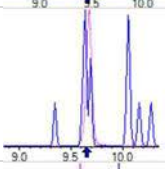
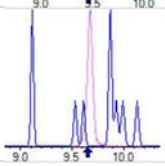
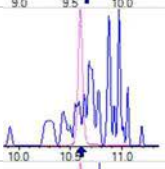
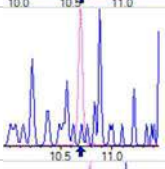
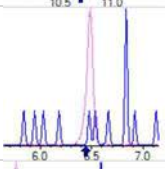
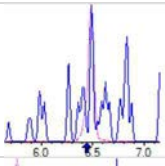
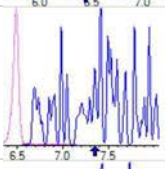
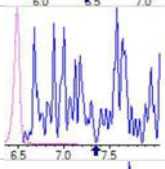
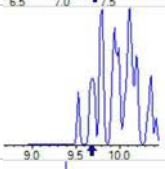
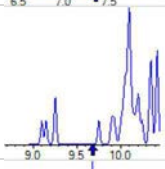
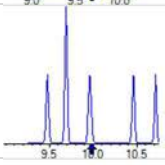
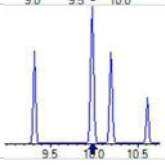
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) N/A (299.0 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 164975 (499.0 / 99.0) 53745	(9.42 , 1.00) (0.00 , N/A , 0.1)	80.4 207.8	0.3258 145.0 136.3	0.1250	N/A			MI4 ABK 1/8/23
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.: BCA0031-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (10)
Acquired: 2023/01/06 - 19:46

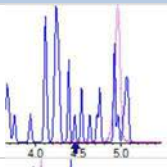
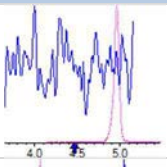
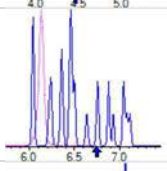
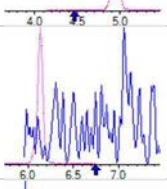
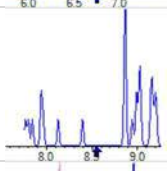
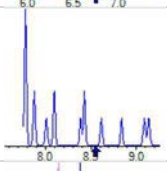
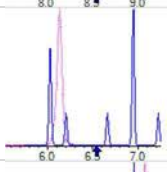
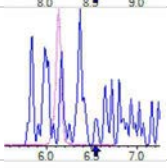
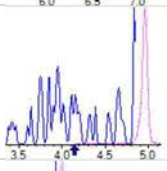
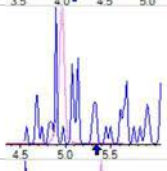
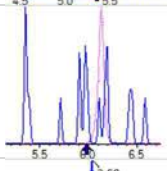
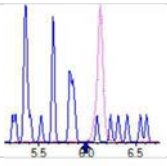
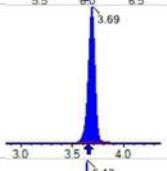
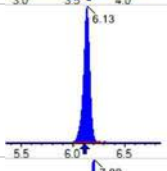
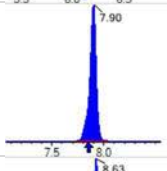
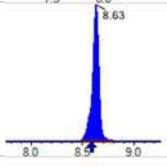
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 14285 (498.0 / 478.0) 217	(10.19 , 1.00) (0.00 , N/A , 1.7)	71.6 9.1	0.0152 64.1 75.8	0.0252	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.: BCA0031-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (10)
Acquired: 2023/01/06 - 19:46

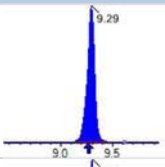
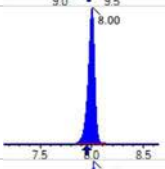
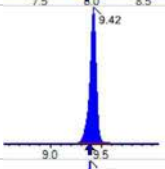
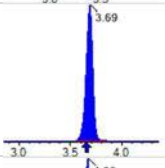
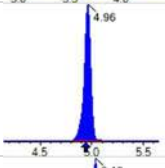
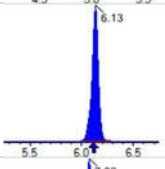
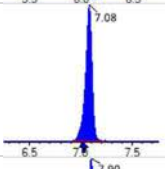
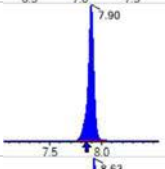
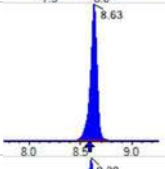
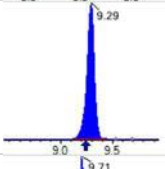
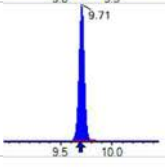
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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			
13C3_PFBA_IIS	(216.0 / 172.0) 180539	(3.69 , N/A) (N/A , 0.04 , N/A)	612.3	N/A	1.0681 [1.0000]	106.8% { 109.5% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 337247	(6.13 , N/A) (N/A , 0.03 , N/A)	572.3	N/A	1.1291 [1.0000]	112.9% { 112.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 344837	(7.90 , N/A) (N/A , 0.05 , N/A)	671.8	N/A	1.0424 [1.0000]	104.2% { 124.1% }			
13C5_PFNA_IIS	(468.0 / 423.0) 276154	(8.63 , N/A) (N/A , 0.05 , N/A)	639.0	N/A	0.9905 [1.0000]	99.1% { 108.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (10)
Acquired: 2023/01/06 - 19:46

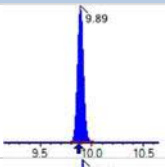
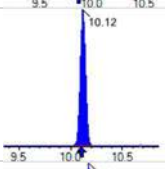
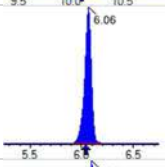
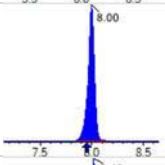
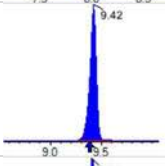
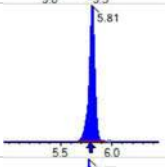
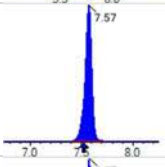
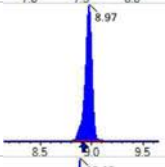
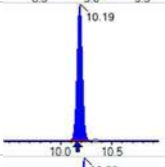
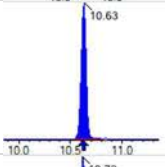
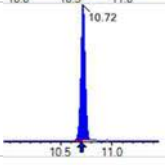
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 298663	(9.29 , N/A) (N/A , 0.04 , N/A)	411.0	N/A	0.9551 [1.0000]	95.5% { 105.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 666394	(8.00 , N/A) (N/A , 0.05 , N/A)	681.7	N/A	1.1347 [1.0000]	113.5% { 119.2% }			
13C4_PFOS_IIS	(503.0 / 79.9) 663899	(9.42 , N/A) (N/A , 0.03 , N/A)	515.2	N/A	1.1246 [1.0000]	112.5% { 138.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1480872	(3.69 , N/A) (N/A , 0.04 , N/A)	659.0	N/A	8.2349 [8.0000]	102.9% { 118.7% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1070763	(4.96 , N/A) (N/A , 0.02 , N/A)	577.8	N/A	3.9246 [4.0000]	98.1% { 127.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 691321	(6.13 , N/A) (N/A , 0.03 , N/A)	562.8	N/A	1.9581 [2.0000]	97.9% { 116.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 608332	(7.08 , N/A) (N/A , 0.05 , N/A)	581.8	N/A	1.9241 [2.0000]	96.2% { 118.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 810585	(7.90 , N/A) (N/A , 0.05 , N/A)	752.5	N/A	2.3726 [2.0000]	118.6% { 136.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 288686	(8.63 , N/A) (N/A , 0.05 , N/A)	373.4	N/A	1.0529 [1.0000]	105.3% { 119.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 432276	(9.29 , N/A) (N/A , 0.04 , N/A)	493.0	N/A	1.2336 [1.0000]	123.4% { 120.4% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 619925	(9.71 , N/A) (N/A , 0.02 , N/A)	409.6	N/A	1.3374 [1.0000]	133.7% { 153.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (10)
Acquired: 2023/01/06 - 19:46

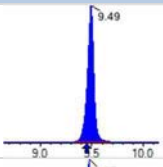
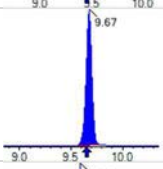
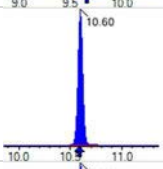
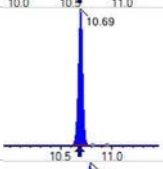
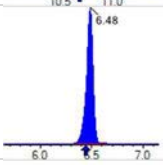
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 528182	(9.89 , N/A) (N/A , 0.02 , N/A)	539.8	N/A	1.1250 [1.0000]	112.5% { 125.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 369280	(10.12 , N/A) (N/A , 0.02 , N/A)	824.3	N/A	1.0993 [1.0000]	109.9% { 125.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1969360	(6.06 , N/A) (N/A , 0.03 , N/A)	583.9	N/A	2.1234 [2.0000]	106.2% { 122.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1162877	(8.00 , N/A) (N/A , 0.05 , N/A)	695.5	N/A	2.1085 [2.0000]	105.4% { 116.2% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1647188	(9.42 , N/A) (N/A , 0.04 , N/A)	495.6	N/A	2.0204 [2.0000]	101.0% { 136.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 909341	(5.81 , N/A) (N/A , 0.03 , N/A)	618.6	N/A	5.7853 [4.0000]	144.6% { 169.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 973862	(7.57 , N/A) (N/A , 0.05 , N/A)	863.7	N/A	4.4427 [4.0000]	111.1% { 154.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 1006987	(8.97 , N/A) (N/A , 0.05 , N/A)	568.0	N/A	4.5005 [4.0000]	112.5% { 148.4% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1021548	(10.19 , N/A) (N/A , 0.02 , N/A)	624.4	N/A	1.1243 [2.0000]	56.2% { 68.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 100844	(10.63 , N/A) (N/A , 0.01 , N/A)	530.9	N/A	0.5023 [2.0000]	25.1% { 36.2% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 93271	(10.72 , N/A) (N/A , 0.01 , N/A)	32.0	N/A	0.5107 [2.0000]	25.5% { 37.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (10)
Acquired: 2023/01/06 - 19:46

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1277155	(9.49 , N/A) (N/A , 0.04 , N/A)	329.3	N/A	4.5150 [4.0000]	112.9% { 142.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1224400	(9.67 , N/A) (N/A , 0.02 , N/A)	144.2	N/A	4.9892 [4.0000]	124.7% { 168.2% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 229247	(10.60 , N/A) (N/A , 0.01 , N/A)	925.5	N/A	7.0879 [20.0000]	35.4% { 42.8% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 109531	(10.69 , N/A) (N/A , 0.01 , N/A)	808.0	N/A	7.4289 [20.0000]	37.1% { 53.5% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1547584	(6.48 , N/A) (N/A , 0.04 , N/A)	545.6	N/A	7.9560 [8.0000]	99.4% { 124.9% }			

ANALYSIS DATA SHEET

LCS

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BCA0031-BS1	File ID:	S2023-01-06B (11)
Sampled:		Prepared:	01/04/23 07:38	Analyzed:	01/06/23 19:59
Solids:		Preparation:	1633	Dilution:	1
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	DL	Q
PFBA	15.3	1.6	0.21	
PFPEA	7.66	0.80	0.065	
PFHXA	3.72	0.40	0.055	
PFHPA	3.67	0.40	0.041	
PFOA	4.14	0.40	0.15	
PFNA	3.99	0.40	0.082	
PFDA	3.95	0.40	0.10	
PFUnA	3.94	0.40	0.16	
PFDOA	4.08	0.40	0.11	
PFTRDA	3.60	0.40	0.20	
PFTEDA	3.50	0.40	0.20	
PFBS	3.40	0.40	0.037	
PFPES	3.69	0.40	0.063	
PFHXS	3.32	0.40	0.032	
PFHPS	3.32	0.40	0.051	
PFOS	3.91	0.40	0.064	
PFNS	3.16	0.40	0.12	
PFDS	3.62	0.40	0.15	
PFDOS	4.17	0.40	0.12	
4:2FTS	15.4	1.6	0.29	
6:2FTS	14.7	1.6	0.31	
8:2FTS	15.3	1.6	0.082	
PFOSA	4.20	0.40	0.10	
NMeFOSA	18.1	1.6	0.47	
NEtFOSA	15.1	1.6	0.41	
NMeFOSAA	3.17	0.40	0.11	
NEtFOSAA	3.67	0.40	0.11	
NMeFOSE	15.6	1.6	1.0	
NEtFOSE	17.8	1.6	1.0	
HFPO-DA	7.09	[illegible]	[illegible]	

ANALYSIS DATA SHEET

LCS

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BCA0031-BS1	File ID:	S2023-01-06B (11)
Sampled:		Prepared:	01/04/23 07:38	Analyzed:	01/06/23 19:59
Solids:		Preparation:	1633	Dilution:	1
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001
Instrument:	Saphira				
Column:	1				

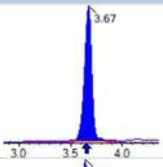
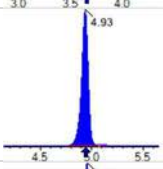
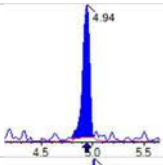
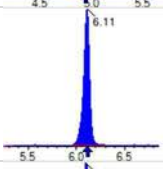
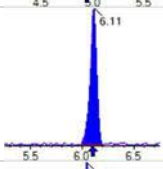
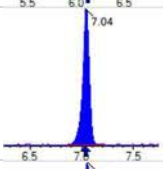
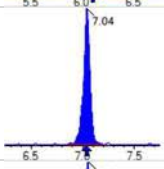
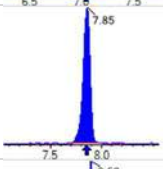
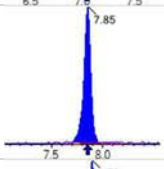
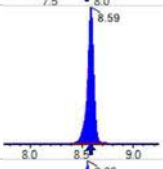
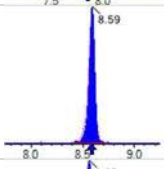
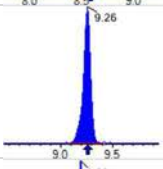
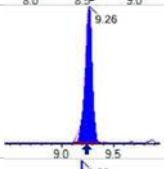
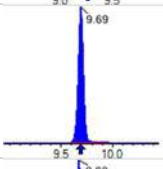
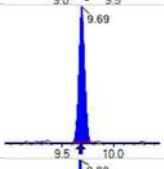
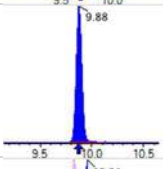
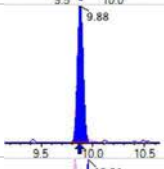
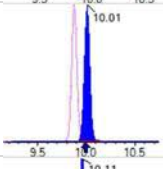
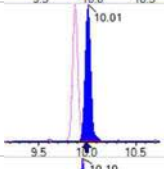
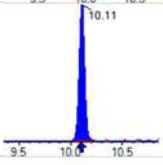
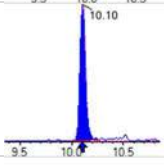
COMPOUND	CONC. (ng/L)	LOQ	DL	Q
ADONA	7.56	0.80	0.12	
PFEESA	7.38	0.80	0.11	
PFMPA	6.86	0.80	0.054	
PFMBA	7.28	0.80	0.091	
NFDHA	6.86	0.80	0.30	
9CL-PF3ONS	7.44	0.80	0.21	
11CL-PF3OUDS	8.84	0.80	0.21	
3:3FTCA	11.3	1.6	0.57	
5:3FTCA	14.5	1.6	0.44	
7:3FTCA	13.7	1.6	0.55	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

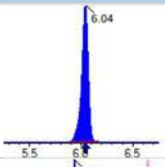
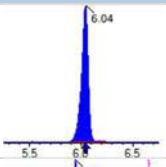
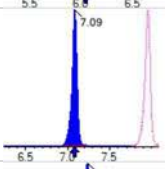
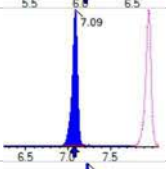
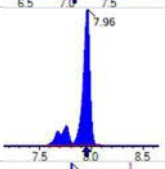
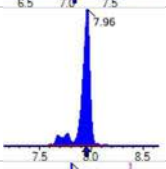
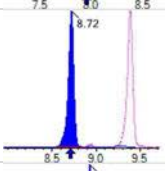
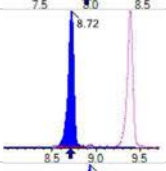
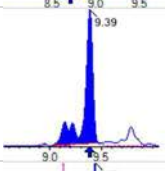
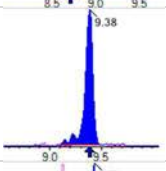
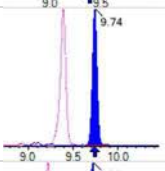
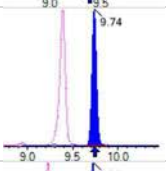
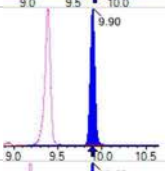
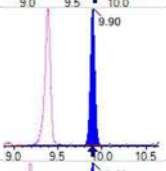
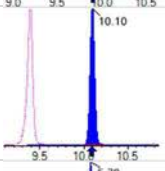
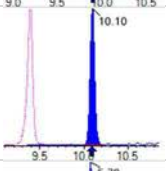
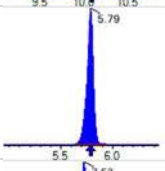
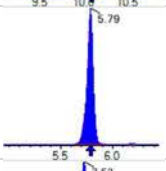
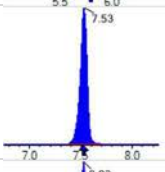
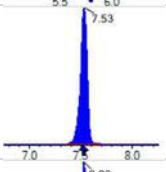
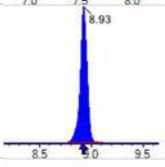
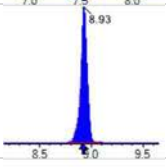
Sample I.D.: BCA0031-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (11)
Acquired: 2023/01/06 - 19:59

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 636093	(3.67 , 1.00) (0.00 , N/A , 0.0)	40.2	N/A 0.0 0.0	3.8300 [4.0000]	95.8%			
PFPeA	(263.0 / 219.0) 473750 (263.0 / 69.0) 5078	(4.93 , 1.00) (0.00 , N/A , -0.2)	506.4 68.3	0.0107 88.3 86.3	1.9161 [2.0000]	95.8%			
PFHxA	(313.0 / 269.0) 302044 (313.0 / 119.0) 35386	(6.11 , 1.00) (0.00 , N/A , -0.2)	383.2 169.8	0.1172 117.4 112.5	0.9312 [1.0000]	93.1%			
PFHpA	(363.0 / 319.0) 287190 (363.0 / 169.0) 82626	(7.04 , 1.00) (0.00 , N/A , 0.2)	405.9 261.9	0.2877 96.5 96.9	0.9185 [1.0000]	91.8%			
PFOA	(413.0 / 369.0) 349314 (413.0 / 169.0) 117103	(7.85 , 1.00) (0.00 , N/A , 0.2)	414.3 260.3	0.3352 101.2 101.9	1.0347 [1.0000]	103.5%			
PFNA	(463.0 / 419.0) 294157 (463.0 / 169.0) 63466	(8.59 , 1.00) (0.00 , N/A , -0.1)	473.1 364.5	0.2158 94.0 94.7	0.9963 [1.0000]	99.6%			
PFDA	(513.0 / 469.0) 420365 (513.0 / 169.0) 45936	(9.26 , 1.00) (0.00 , N/A , -0.4)	431.5 238.2	0.1093 114.4 123.9	0.9865 [1.0000]	98.7%			
PFUnA	(563.0 / 519.0) 421046 (563.0 / 169.0) 53336	(9.69 , 1.00) (0.00 , N/A , 0.1)	327.0 289.6	0.1267 126.7 133.9	0.9843 [1.0000]	98.4%			
PFDoA	(613.0 / 569.0) 485442 (613.0 / 169.0) 56907	(9.88 , 1.00) (0.00 , N/A , -0.2)	586.1 270.7	0.1172 95.6 89.4	1.0189 [1.0000]	101.9%			
PFTrDA	(663.0 / 619.0) 407572 (663.0 / 169.0) 83665	(10.01 , 1.01) (N/A , 0.01 , 0.1)	1011.6 402.0	0.2053 105.1 80.7	0.9007 [1.0000]	90.1%			
PFTeDA	(713.0 / 669.0) 302810 (713.0 / 169.0) 66228	(10.11 , 1.00) (0.00 , N/A , 0.3)	306.4 145.6	0.2187 114.9 99.2	0.8740 [1.0000]	87.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: BCA0031-BS1 | Quant Method: 1633 - S2023-01-05B
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2023-01-06B (11)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2023-01-05.dam | Acquired: 2023/01/06 - 19:59

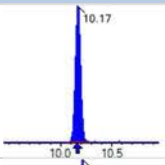
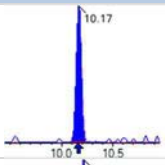
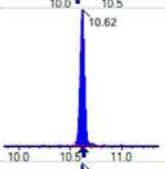
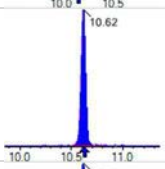
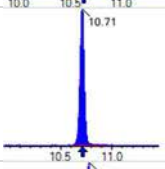
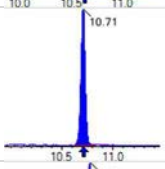
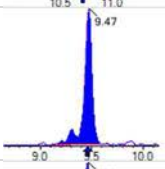
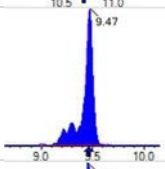
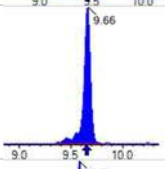
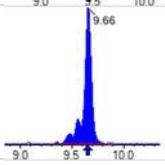
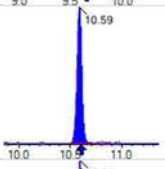
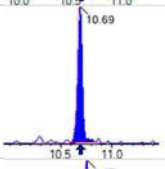
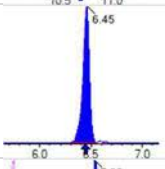
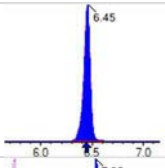
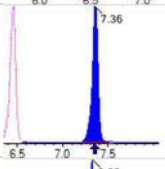
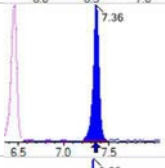
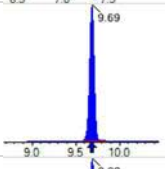
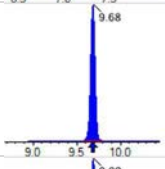
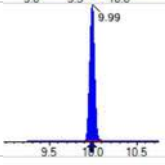
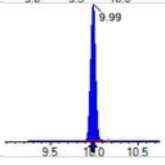
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 509256 (299.0 / 99.0) 307761	(6.04 , 1.00) (0.00 , N/A , 0.0)	677.1 431.7	0.6043 92.7 96.0	0.8501 [0.8847]	96.1%			
PFPeS	(349.0 / 80.0) 867843 (349.0 / 99.0) 331492	(7.09 , 0.89) (N/A , 0.01 , 0.0)	668.9 545.7	0.3820 103.8 97.7	0.9235 [0.9384]	98.4%			
PFHxS	(399.0 / 80.0) 718160 (399.0 / 99.0) 252405	(7.96 , 1.00) (0.00 , N/A , 0.1)	638.3 544.9	0.3515 101.9 97.0	0.8291 [0.9110]	91.0%			
PFHpS	(449.0 / 80.0) 634392 (449.0 / 99.0) 188829	(8.72 , 0.93) (N/A , 0.01 , 0.0)	546.2 335.3	0.2977 106.4 100.5	0.8309 [0.9514]	87.3%			
PFOS	(499.0 / 80.0) 947595 (499.0 / 99.0) 228157	(9.39 , 1.00) (0.00 , N/A , 0.2)	134.6 120.8	0.2408 107.2 100.7	0.9766 [0.9275]	105.3%			
PFNS	(549.0 / 80.0) 813227 (549.0 / 99.0) 219980	(9.74 , 1.04) (N/A , 0.01 , 0.1)	266.0 448.4	0.2705 107.1 123.2	0.7901 [0.9599]	82.3%			
PFDS	(599.0 / 80.0) 1012845 (599.0 / 99.0) 224784	(9.90 , 1.05) (N/A , 0.01 , -0.1)	703.0 409.5	0.2219 95.8 100.8	0.9058 [0.9631]	94.0%			
PFDoS	(699.0 / 80.0) 491002 (699.0 / 99.0) 106274	(10.10 , 1.08) (N/A , 0.00 , 0.0)	698.3 193.8	0.2164 93.2 91.2	1.0430 [0.9696]	107.6%			
4:2FTS	(327.0 / 307.0) 2587282 (327.0 / 81.0) 1617945	(5.79 , 1.00) (0.00 , N/A , 0.1)	600.7 493.3	0.6253 113.9 106.4	3.8623 [3.7381]	103.3%			
6:2FTS	(427.0 / 407.0) 1457803 (427.0 / 81.0) 1000848	(7.53 , 1.00) (0.00 , N/A , -0.1)	690.6 718.5	0.6865 94.5 87.5	3.6684 [3.7962]	96.6%			
8:2FTS	(527.0 / 507.0) 1379394 (527.0 / 81.0) 981084	(8.93 , 1.00) (0.00 , N/A , -0.2)	546.5 724.9	0.7112 106.6 138.2	3.8233 [3.8332]	99.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (11)
Acquired: 2023/01/06 - 19:59

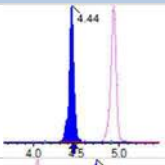
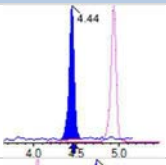
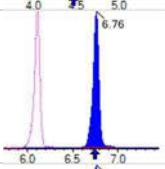
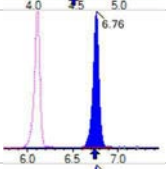
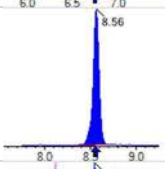
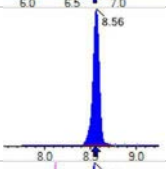
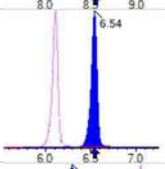
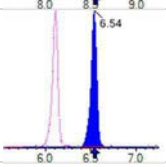
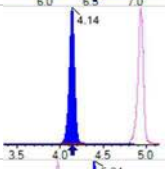
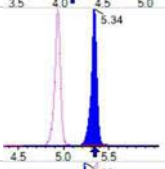
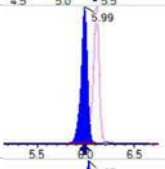
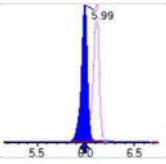
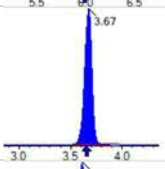
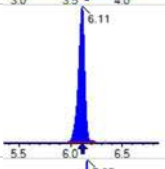
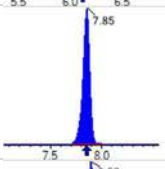
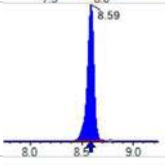
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 572291 (498.0 / 478.0) 13151	(10.17 , 1.00) (0.00 , N/A , 0.1)	505.6 99.1	0.0230 97.0 114.7	1.0490 [1.0000]	104.9%			
NMeFOSA	(512.0 / 219.0) 167714 (512.0 / 169.0) 119076	(10.62 , 1.00) (0.00 , N/A , -0.1)	916.8 631.3	0.7100 99.0 102.1	4.5372 [4.0000]	113.4%			
NEtFOSA	(526.0 / 219.0) 128079 (526.0 / 169.0) 137358	(10.71 , 1.00) (0.00 , N/A , 0.0)	571.8 398.4	1.0724 99.6 97.6	3.7840 [4.0000]	94.6%			
NMeFOSAA	(570.0 / 419.0) 233976 (570.0 / 483.0) 136510	(9.47 , 1.00) (0.01 , N/A , 0.0)	212.7 720.6	0.5834 122.3 128.1	0.7926 [1.0000]	79.3%			
NEtFOSAA	(584.0 / 419.0) 231529 (584.0 / 526.0) 155779	(9.66 , 1.00) (0.00 , N/A , 0.1)	607.5 360.3	0.6728 105.8 120.4	0.9171 [1.0000]	91.7%			
NMeFOSE	(616.0 / 59.0) 47185	(10.59 , 1.00) (0.01 , N/A , 0.0)	296.9	N/A 0.0 0.0	3.8977 [4.0000]	97.4%			
NEtFOSE	(630.0 / 59.0) 9110	(10.69 , 1.00) (0.01 , N/A , 0.0)	139.2	N/A 0.0 0.0	4.4527 [4.0000]	111.3%			
HFPO-DA	(285.0 / 169.0) 190843 (285.0 / 185.0) 685491	(6.45 , 1.00) (0.00 , N/A , 0.2)	575.7 595.1	3.5919 111.5 101.3	1.7726 [2.0000]	88.6%			
ADONA	(377.0 / 85.0) 1089848 (377.0 / 251.0) 148019	(7.36 , 1.14) (N/A , 0.01 , 0.0)	605.7 302.1	0.1358 108.7 99.6	1.8899 [1.8854]	100.2%			
9Cl-Pf3ONS	(531.0 / 351.0) 2959429 (533.0 / 353.0) 979712	(9.69 , 1.50) (N/A , 0.01 , 0.0)	535.5 738.5	0.3310 109.3 92.1	1.8605 [1.8665]	99.7%			
11Cl-PF3OUDS	(631.0 / 451.0) 1687875 (633.0 / 453.0) 504847	(9.99 , 1.55) (N/A , 0.01 , 0.0)	563.9 375.7	0.2991 104.0 101.0	2.2095 [1.8864]	117.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (11)
Acquired: 2023/01/06 - 19:59

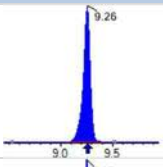
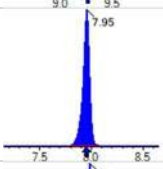
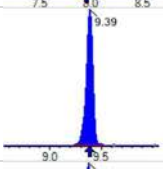
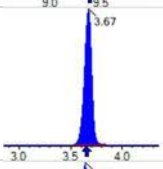
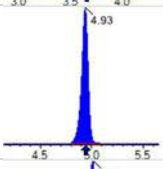
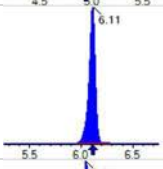
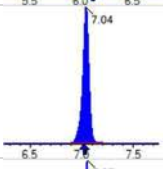
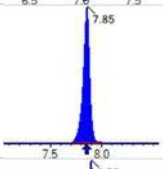
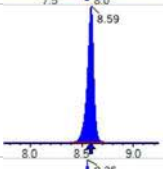
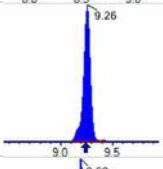
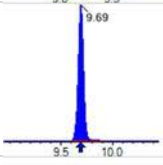
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 20555 (241.0 / 117.0) 34336	(4.44 , 0.90) (N/A , -0.01 , -0.1)	419.0 179.5	1.6704 107.1 94.9	2.8368 [4.0000]	70.9%			
5:3FTCA	(341.0 / 236.7) 182843 (341.0 / 217.0) 316347	(6.76 , 1.11) (N/A , 0.01 , 0.0)	304.5 357.4	1.7302 93.2 96.4	3.6224 [4.0000]	90.6%			
7:3FTCA	(441.0 / 317.0) 243388 (441.0 / 337.0) 195303	(8.56 , 1.40) (N/A , 0.01 , 0.0)	494.2 482.4	0.8024 100.1 103.3	3.4311 [4.0000]	85.8%			
PFEESA	(315.0 / 135.0) 574887 (315.0 / 83.0) 160585	(6.54 , 1.07) (N/A , 0.01 , 0.2)	490.5 404.2	0.2793 88.7 97.2	1.8450 [1.7849]	103.4%			
PFMPA	(229.0 / 85.0) 106492	(4.14 , 0.84) (N/A , 0.01 , 0.0)	853.3	N/A 0.0 0.0	1.7138 [2.0000]	85.7%			
PFMBA	(279.0 / 85.0) 340333	(5.34 , 1.08) (N/A , 0.00 , 0.0)	669.0	N/A 0.0 0.0	1.8197 [2.0000]	91.0%			
NFDHA	(295.0 / 201.0) 248627 (295.0 / 85.0) 246692	(5.99 , 0.98) (N/A , 0.00 , 0.0)	503.0 453.1	0.9922 102.3 97.6	1.7162 [2.0000]	85.8%			
13C3_PFBA_IIS	(216.0 / 172.0) 179371	(3.67 , N/A) (N/A , 0.02 , N/A)	557.9	N/A	1.0612 [1.0000]	106.1% { 108.8% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 317665	(6.11 , N/A) (N/A , 0.00 , N/A)	518.7	N/A	1.0636 [1.0000]	106.4% { 105.5% }			
13C4_PFOA_IIS	(417.0 / 372.0) 319740	(7.85 , N/A) (N/A , 0.00 , N/A)	475.4	N/A	0.9665 [1.0000]	96.6% { 115.1% }			
13C5_PFNA_IIS	(468.0 / 423.0) 287514	(8.59 , N/A) (N/A , 0.01 , N/A)	620.9	N/A	1.0313 [1.0000]	103.1% { 113.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (11)
Acquired: 2023/01/06 - 19:59

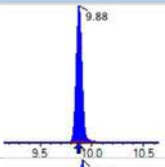
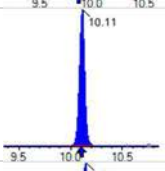
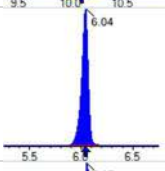
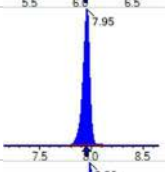
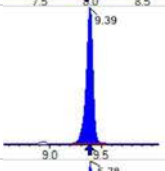
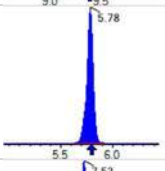
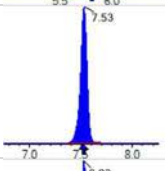
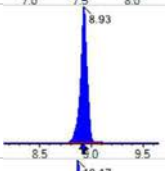
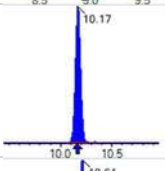
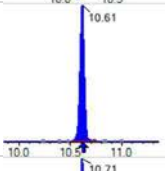
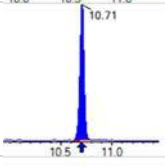
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 347269	(9.26 , N/A) (N/A , 0.00 , N/A)	361.5	N/A	1.1106 [1.0000]	111.1% { 122.2% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 602655	(7.95 , N/A) (N/A , 0.00 , N/A)	770.7	N/A	1.0261 [1.0000]	102.6% { 107.8% }			
13C4_PFOS_IIS	(503.0 / 79.9) 645096	(9.39 , N/A) (N/A , 0.00 , N/A)	425.0	N/A	1.0928 [1.0000]	109.3% { 134.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1447874	(3.67 , N/A) (N/A , 0.02 , N/A)	582.6	N/A	8.1039 [8.0000]	101.3% { 116.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 1050241	(4.93 , N/A) (N/A , -0.01 , N/A)	562.0	N/A	4.0867 [4.0000]	102.2% { 124.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 660446	(6.11 , N/A) (N/A , 0.00 , N/A)	476.1	N/A	1.9860 [2.0000]	99.3% { 111.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 611339	(7.04 , N/A) (N/A , 0.01 , N/A)	540.4	N/A	2.0528 [2.0000]	102.6% { 119.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 639871	(7.85 , N/A) (N/A , 0.01 , N/A)	598.7	N/A	2.0199 [2.0000]	101.0% { 107.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 302245	(8.59 , N/A) (N/A , 0.01 , N/A)	609.8	N/A	1.0588 [1.0000]	105.9% { 125.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 412244	(9.26 , N/A) (N/A , 0.01 , N/A)	458.9	N/A	1.0118 [1.0000]	101.2% { 114.8% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 477231	(9.69 , N/A) (N/A , 0.01 , N/A)	665.8	N/A	0.8854 [1.0000]	88.5% { 117.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (11)
Acquired: 2023/01/06 - 19:59

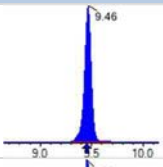
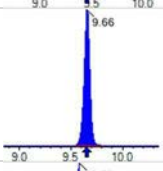
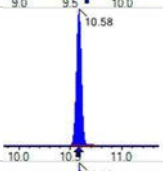
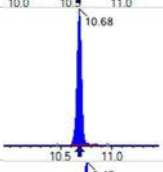
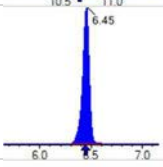
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 522242	(9.88 , N/A) (N/A , 0.01 , N/A)	551.5	N/A	0.9566 [1.0000]	95.7% { 124.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 347777	(10.11 , N/A) (N/A , 0.01 , N/A)	697.7	N/A	0.8904 [1.0000]	89.0% { 118.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1893293	(6.04 , N/A) (N/A , 0.00 , N/A)	537.5	N/A	2.2573 [2.0000]	112.9% { 118.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1029203	(7.95 , N/A) (N/A , 0.01 , N/A)	685.5	N/A	2.0635 [2.0000]	103.2% { 102.9% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1584751	(9.39 , N/A) (N/A , 0.01 , N/A)	345.3	N/A	2.0005 [2.0000]	100.0% { 131.5% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 775077	(5.78 , N/A) (N/A , 0.00 , N/A)	621.8	N/A	5.4527 [4.0000]	136.3% { 144.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 989072	(7.53 , N/A) (N/A , 0.01 , N/A)	576.8	N/A	4.9893 [4.0000]	124.7% { 156.6% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 954105	(8.93 , N/A) (N/A , 0.01 , N/A)	437.7	N/A	4.7151 [4.0000]	117.9% { 140.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 984757	(10.17 , N/A) (N/A , 0.01 , N/A)	644.1	N/A	1.1154 [2.0000]	55.8% { 66.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 80594	(10.61 , N/A) (N/A , 0.00 , N/A)	393.7	N/A	0.4131 [2.0000]	20.7% { 28.9% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 67568	(10.71 , N/A) (N/A , 0.00 , N/A)	30.5	N/A	0.3807 [2.0000]	19.0% { 27.3% }			S1,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (11)
Acquired: 2023/01/06 - 19:59

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1267547	(9.46 , N/A) (N/A , 0.01 , N/A)	383.2	N/A	4.6116 [4.0000]	115.3% { 141.4% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1126739	(9.66 , N/A) (N/A , 0.00 , N/A)	162.5	N/A	4.7251 [4.0000]	118.1% { 154.8% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 194501	(10.58 , N/A) (N/A , 0.00 , N/A)	842.7	N/A	6.1889 [20.0000]	30.9% { 36.3% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 77285	(10.68 , N/A) (N/A , 0.00 , N/A)	662.5	N/A	5.3946 [20.0000]	27.0% { 37.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1426752	(6.45 , N/A) (N/A , 0.01 , N/A)	835.6	N/A	7.7869 [8.0000]	97.3% { 115.1% }			

ANALYSIS DATA SHEET

MRL Check

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BCA0031-MRL1	File ID:	S2023-01-06B (12)
Sampled:		Prepared:	01/04/23 07:38	Analyzed:	01/06/23 20:12
Solids:		Preparation:	1633	Dilution:	1
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	DL	Q
PFBA	1.56	1.6	0.21	J
PFPEA	0.765	0.80	0.065	J
PFHXA	0.425	0.40	0.055	
PFHPA	0.422	0.40	0.041	
PFOA	0.510	0.40	0.15	
PFNA	0.468	0.40	0.082	
PFDA	0.380	0.40	0.10	J
PFUnA	0.437	0.40	0.16	IR1
PFDOA	0.431	0.40	0.11	IR2
PFTRDA	0.379	0.40	0.20	IR2, J
PFTEDA	0.501	0.40	0.20	
PFBS	0.371	0.40	0.037	J
PFPES	0.346	0.40	0.063	J
PFHXS	0.371	0.40	0.032	J
PFHPS	0.404	0.40	0.051	
PFOS	1.21	0.40	0.064	BS2
PFNS	0.412	0.40	0.12	
PFDS	0.437	0.40	0.15	
PFDOS	0.413	0.40	0.12	
4:2FTS	1.40	1.6	0.29	J
6:2FTS	1.67	1.6	0.31	
8:2FTS	1.50	1.6	0.082	J
PFOSA	0.548	0.40	0.10	
NMeFOSA	1.40	1.6	0.47	J
NEtFOSA	1.42	1.6	0.41	J
NMeFOSAA	0.316	0.40	0.11	IR2, J
NEtFOSAA	0.426	0.40	0.11	
NMeFOSE	1.46	1.6	1.0	J
NEtFOSE	1.42	1.6	1.0	J
HFPO-DA	0.752	0.80	0.13	J

ANALYSIS DATA SHEET

MRL Check

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BCA0031-MRL1	File ID:	S2023-01-06B (12)
Sampled:		Prepared:	01/04/23 07:38	Analyzed:	01/06/23 20:12
Solids:		Preparation:	1633	Dilution:	1
Batch:	BCA0031	Sequence:	SC00069	Calibration:	2302001
Instrument:	Saphira				
Column:	1				

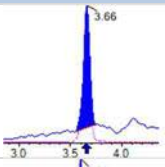
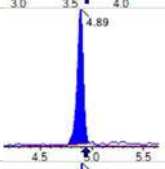
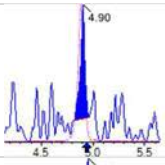
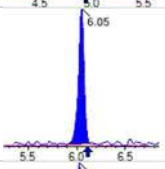
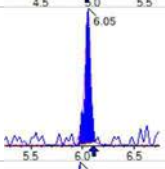
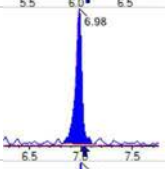
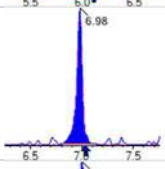
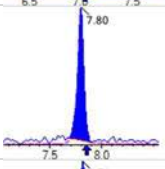
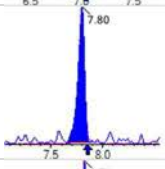
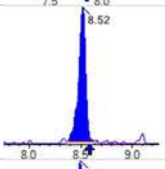
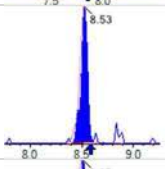
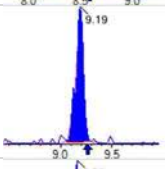
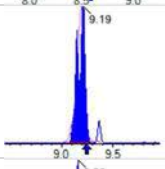
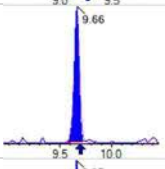
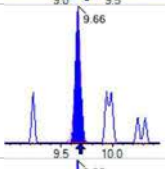
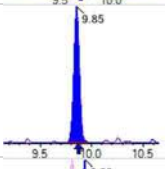
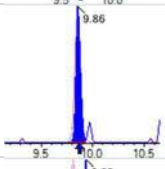
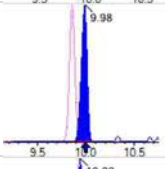
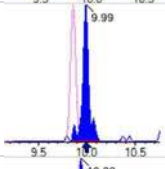
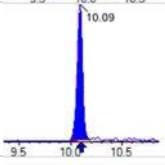
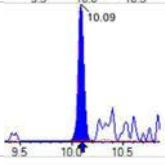
COMPOUND	CONC. (ng/L)	LOQ	DL	Q
ADONA	0.750	0.80	0.12	J
PFEESA	0.842	0.80	0.11	
PFMPA	0.800	0.80	0.054	
PFMBA	0.709	0.80	0.091	J
NFDHA	0.707	0.80	0.30	J
9CL-PF3ONS	0.673	0.80	0.21	J
11CL-PF3OUDS	0.851	0.80	0.21	
3:3FTCA	1.48	1.6	0.57	J
5:3FTCA	1.25	1.6	0.44	J
7:3FTCA	1.40	1.6	0.55	J

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (12)
Acquired: 2023/01/06 - 20:12

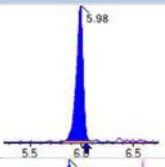
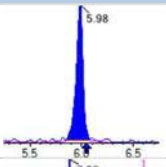
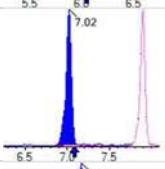
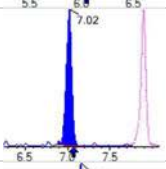
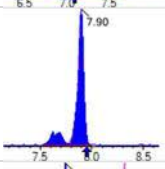
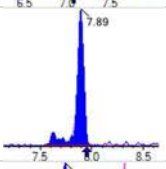
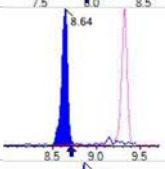
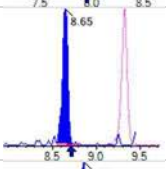
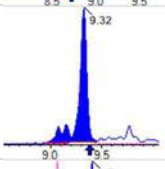
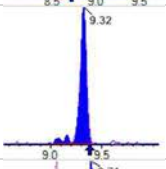
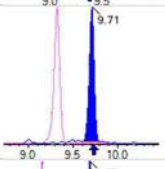
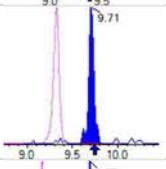
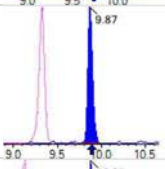
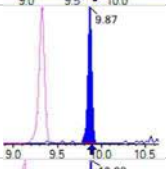
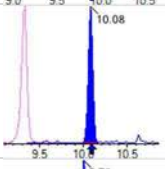
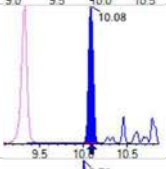
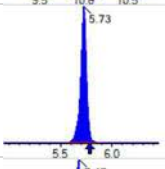
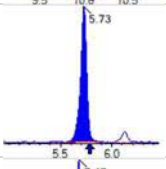
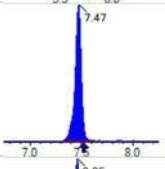
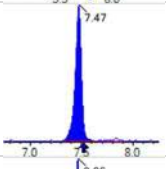
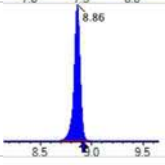
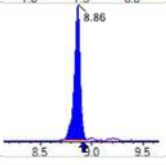
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(213.0 / 169.0) 63545	(3.66 , 1.00) (0.00 , N/A , 0.0)	40.5	N/A 0.0 0.0	0.3893 [0.4000]	97.3%			
PFPeA	(263.0 / 219.0) 42037 (263.0 / 69.0) 501	(4.89 , 1.00) (0.00 , N/A , -0.9)	189.4 11.9	0.0119 98.1 95.9	0.1912 [0.2000]	95.6%			
PFHxA	(313.0 / 269.0) 33160 (313.0 / 119.0) 3757	(6.05 , 1.00) (0.00 , N/A , -0.1)	119.8 38.2	0.1133 113.5 108.7	0.1064 [0.1000]	106.4%			
PFHpA	(363.0 / 319.0) 32418 (363.0 / 169.0) 11937	(6.98 , 1.00) (0.00 , N/A , 0.3)	92.8 99.4	0.3682 123.6 124.1	0.1055 [0.1000]	105.5%			
PFOA	(413.0 / 369.0) 46623 (413.0 / 169.0) 17580	(7.80 , 1.00) (0.00 , N/A , 0.1)	23.2 66.1	0.3771 113.8 114.6	0.1275 [0.1000]	127.5%			
PFNA	(463.0 / 419.0) 27187 (463.0 / 169.0) 5487	(8.52 , 1.00) (0.00 , N/A , -0.7)	136.6 77.7	0.2018 87.9 88.6	0.1170 [0.1000]	117.0%			
PFDA	(513.0 / 469.0) 34613 (513.0 / 169.0) 3433	(9.19 , 1.00) (0.00 , N/A , -0.1)	89.9 1440.0	0.0992 103.8 112.5	0.0950 [0.1000]	95.0%			
PFUnA	(563.0 / 519.0) 53920 (563.0 / 169.0) 2358	(9.66 , 1.00) (0.00 , N/A , 0.0)	117.8 29.3	0.0437 43.7 46.2	0.1093 [0.1000]	109.3%			IR1,
PFDoA	(613.0 / 569.0) 50142 (613.0 / 169.0) 13832	(9.85 , 1.00) (0.00 , N/A , -0.3)	164.5 134.3	0.2759 224.9 210.3	0.1077 [0.1000]	107.7%			IR2,
PFTrDA	(663.0 / 619.0) 41930 (663.0 / 169.0) 14581	(9.98 , 1.01) (N/A , -0.01 , -0.2)	219.0 82.6	0.3477 178.0 136.7	0.0948 [0.1000]	94.8%			IR2,
PFTeDA	(713.0 / 669.0) 40867 (713.0 / 169.0) 8460	(10.09 , 1.00) (0.01 , N/A , 0.0)	120.1 27.3	0.2070 108.8 93.9	0.1253 [0.1000]	125.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (12)
Acquired: 2023/01/06 - 20:12

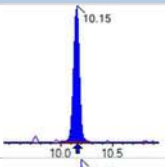
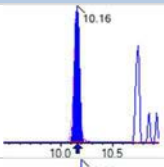
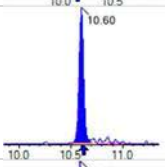
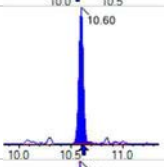
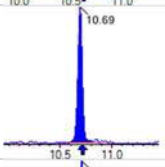
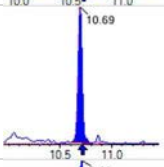
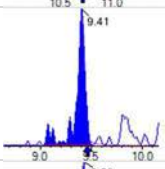
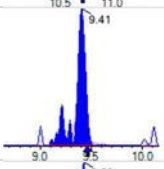
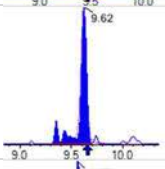
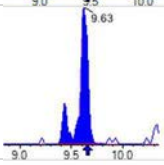
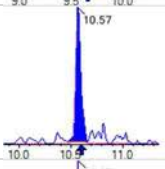
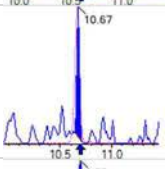
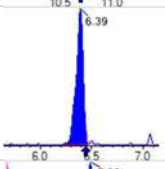
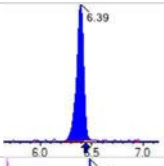
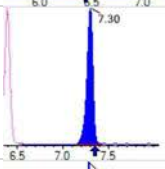
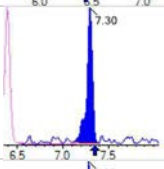
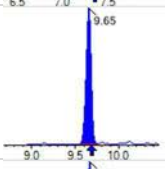
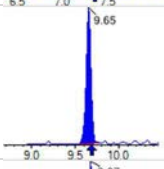
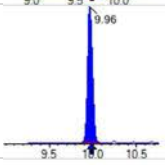
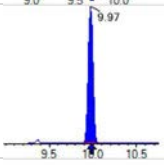
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(299.0 / 80.0) 48506 (299.0 / 99.0) 30840	(5.98 , 1.00) (0.00 , N/A , 0.2)	207.0 131.7	0.6358 97.6 101.0	0.0927 [0.0885]	104.7%			
PFPeS	(349.0 / 80.0) 91460 (349.0 / 99.0) 30867	(7.02 , 0.89) (N/A , -0.05 , 0.2)	304.5 146.0	0.3375 91.8 86.3	0.0865 [0.0938]	92.2%			
PFHxS	(399.0 / 80.0) 90304 (399.0 / 99.0) 29746	(7.90 , 1.00) (0.00 , N/A , 0.3)	382.2 182.3	0.3294 95.5 91.0	0.0926 [0.0911]	101.7%			
PFHpS	(449.0 / 80.0) 73764 (449.0 / 99.0) 20957	(8.64 , 0.93) (N/A , -0.06 , -0.3)	135.9 96.2	0.2841 101.6 95.9	0.1009 [0.0951]	106.0%			
PFOS	(499.0 / 80.0) 309179 (499.0 / 99.0) 79557	(9.32 , 1.00) (0.00 , N/A , 0.1)	99.3 2100.0	0.2573 114.5 107.7	0.3021 [0.0927]	325.7%			QC,
PFNS	(549.0 / 80.0) 101427 (549.0 / 99.0) 25025	(9.71 , 1.04) (N/A , -0.02 , 0.1)	168.7 97.6	0.2467 97.7 112.4	0.1029 [0.0960]	107.2%			
PFDS	(599.0 / 80.0) 117009 (599.0 / 99.0) 23911	(9.87 , 1.06) (N/A , -0.02 , 0.1)	215.6 135.5	0.2043 88.2 92.8	0.1093 [0.0963]	113.4%			
PFDoS	(699.0 / 80.0) 46531 (699.0 / 99.0) 10300	(10.08 , 1.08) (N/A , -0.01 , -0.2)	162.4 43.5	0.2213 95.3 93.2	0.1032 [0.0970]	106.4%			
4:2FTS	(327.0 / 307.0) 258775 (327.0 / 81.0) 152759	(5.73 , 1.00) (0.00 , N/A , -0.1)	597.8 207.5	0.5903 107.5 100.5	0.3501 [0.3738]	93.6%			
6:2FTS	(427.0 / 407.0) 153905 (427.0 / 81.0) 98356	(7.47 , 1.00) (0.00 , N/A , -0.1)	505.4 274.5	0.6391 88.0 81.5	0.4182 [0.3796]	110.2%			
8:2FTS	(527.0 / 507.0) 159659 (527.0 / 81.0) 93341	(8.86 , 1.00) (0.00 , N/A , -0.2)	566.6 259.6	0.5846 87.6 113.6	0.3756 [0.3833]	98.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (12)
Acquired: 2023/01/06 - 20:12

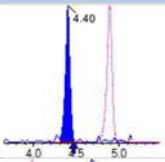
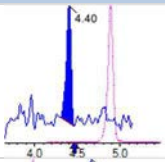
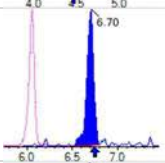
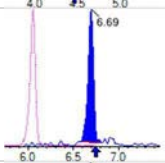
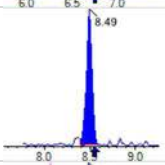
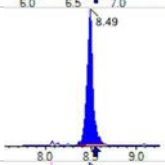
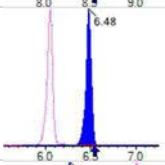
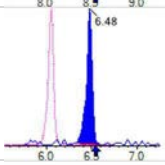
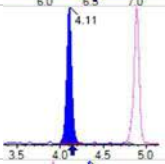
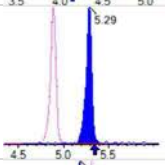
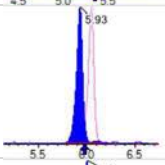
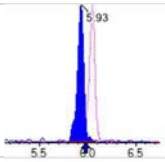
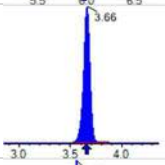
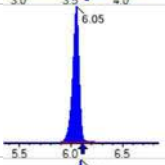
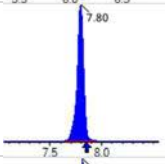
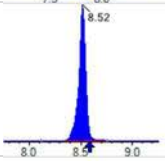
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 55060 (498.0 / 478.0) 1516	(10.15 , 1.00) (0.00 , N/A , -0.3)	294.8 44.9	0.0275 116.2 137.4	0.1371 [0.1000]	137.1%			QC,
NMeFOSA	(512.0 / 219.0) 16241 (512.0 / 169.0) 11573	(10.60 , 1.00) (0.00 , N/A , 0.1)	154.1 175.4	0.7126 99.4 102.5	0.3506 [0.4000]	87.7%			
NEtFOSA	(526.0 / 219.0) 14852 (526.0 / 169.0) 14227	(10.69 , 1.00) (0.00 , N/A , -0.1)	193.9 121.1	0.9579 89.0 87.2	0.3546 [0.4000]	88.6%			
NMeFOSAA	(570.0 / 419.0) 23272 (570.0 / 483.0) 18273	(9.41 , 1.00) (0.00 , N/A , 0.0)	110.6 259.0	0.7852 164.5 172.4	0.0791 [0.1000]	79.1%			IR2,
NEtFOSAA	(584.0 / 419.0) 26262 (584.0 / 526.0) 17428	(9.62 , 1.00) (0.01 , N/A , -0.3)	161.6 151.5	0.6636 104.4 118.8	0.1066 [0.1000]	106.6%			
NMeFOSE	(616.0 / 59.0) 4868	(10.57 , 1.00) (0.00 , N/A , 0.0)	57.7	N/A 0.0 0.0	0.3658 [0.4000]	91.4%			
NEtFOSE	(630.0 / 59.0) 890	(10.67 , 1.00) (0.01 , N/A , 0.0)	22.2	N/A 0.0 0.0	0.3557 [0.4000]	88.9%			
HFPO-DA	(285.0 / 169.0) 20079 (285.0 / 185.0) 71848	(6.39 , 1.00) (0.00 , N/A , -0.1)	188.0 297.2	3.5784 111.0 100.9	0.1881 [0.2000]	94.0%			
ADONA	(377.0 / 85.0) 107285 (377.0 / 251.0) 17179	(7.30 , 1.14) (N/A , -0.05 , 0.1)	356.3 79.3	0.1601 128.1 117.4	0.1876 [0.1885]	99.5%			
9Cl-Pf3ONS	(531.0 / 351.0) 277437 (533.0 / 353.0) 91531	(9.65 , 1.51) (N/A , -0.03 , 0.1)	283.6 136.3	0.3299 108.9 91.8	0.1683 [0.1867]	90.2%			
11Cl-PF3OUDS	(631.0 / 451.0) 161229 (633.0 / 453.0) 55860	(9.96 , 1.56) (N/A , -0.02 , -0.5)	275.1 11838.9	0.3465 120.5 117.0	0.2128 [0.1886]	112.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (12)
Acquired: 2023/01/06 - 20:12

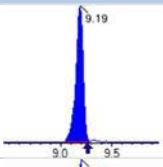
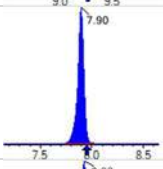
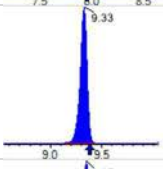
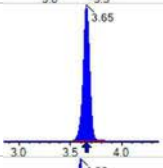
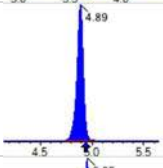
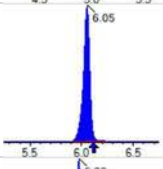
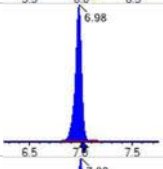
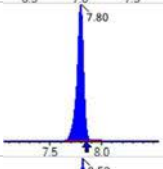
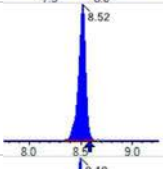
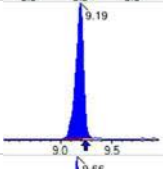
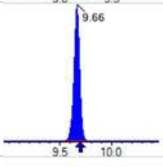
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 2377 (241.0 / 117.0) 3798	(4.40 , 0.90) (N/A , -0.06 , -0.1)	104.5 33.2	1.5977 102.4 90.8	0.3689 [0.4000]	92.2%			
5:3FTCA	(341.0 / 236.7) 15121 (341.0 / 217.0) 31563	(6.70 , 1.11) (N/A , -0.05 , 0.3)	78.8 98.5	2.0873 112.4 116.4	0.3117 [0.4000]	77.9%			
7:3FTCA	(441.0 / 317.0) 23809 (441.0 / 337.0) 19148	(8.49 , 1.40) (N/A , -0.06 , 0.2)	120.1 184.5	0.8042 100.3 103.5	0.3492 [0.4000]	87.3%			
PFEESA	(315.0 / 135.0) 63017 (315.0 / 83.0) 18083	(6.48 , 1.07) (N/A , -0.05 , 0.1)	638.5 100.8	0.2870 91.2 99.9	0.2104 [0.1785]	117.9%			
PFMPA	(229.0 / 85.0) 11056	(4.11 , 0.84) (N/A , -0.03 , 0.0)	264.7	N/A 0.0 0.0	0.2001 [0.2000]	100.0%			
PFMBA	(279.0 / 85.0) 29483	(5.29 , 1.08) (N/A , -0.05 , 0.0)	331.2	N/A 0.0 0.0	0.1773 [0.2000]	88.6%			
NFDHA	(295.0 / 201.0) 24602 (295.0 / 85.0) 25052	(5.93 , 0.98) (N/A , -0.05 , 0.0)	273.9 171.0	1.0183 105.0 100.2	0.1767 [0.2000]	88.3%			
13C3_PFBA_IIS	(216.0 / 172.0) 177895	(3.66 , N/A) (N/A , 0.01 , N/A)	543.5	N/A	1.0525 [1.0000]	105.2% { 107.9% }			
13C2_PFHxA_IIS	(315.0 / 270.0) 284641	(6.05 , N/A) (N/A , -0.06 , N/A)	416.9	N/A	0.9530 [1.0000]	95.3% { 94.5% }			
13C4_PFOA_IIS	(417.0 / 372.0) 332489	(7.80 , N/A) (N/A , -0.05 , N/A)	617.6	N/A	1.0050 [1.0000]	100.5% { 119.7% }			
13C5_PFNA_IIS	(468.0 / 423.0) 252756	(8.52 , N/A) (N/A , -0.06 , N/A)	459.4	N/A	0.9066 [1.0000]	90.7% { 99.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (12)
Acquired: 2023/01/06 - 20:12

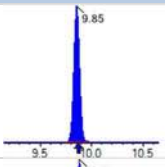
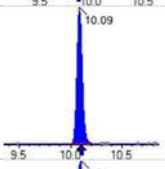
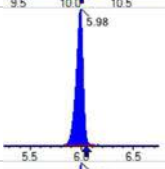
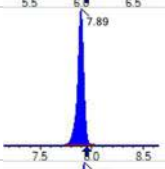
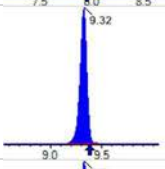
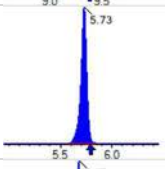
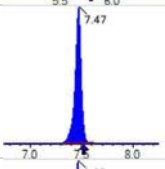
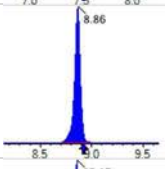
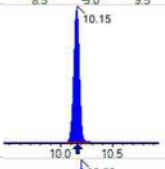
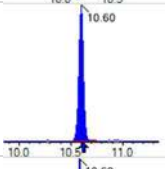
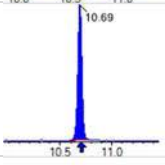
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.0 / 470.1) 336629	(9.19 , N/A) (N/A , -0.06 , N/A)	340.6	N/A	1.0765 [1.0000]	107.7% { 118.5% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 605180	(7.90 , N/A) (N/A , -0.05 , N/A)	741.0	N/A	1.0304 [1.0000]	103.0% { 108.3% }			
13C4_PFOS_IIS	(503.0 / 79.9) 585994	(9.33 , N/A) (N/A , -0.06 , N/A)	382.2	N/A	0.9927 [1.0000]	99.3% { 122.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1422941	(3.65 , N/A) (N/A , 0.01 , N/A)	750.2	N/A	8.0304 [8.0000]	100.4% { 114.1% }			
13C5_PFPeA_EIS	(268.0 / 223.0) 933963	(4.89 , N/A) (N/A , -0.05 , N/A)	610.8	N/A	4.0558 [4.0000]	101.4% { 110.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 634791	(6.05 , N/A) (N/A , -0.05 , N/A)	421.6	N/A	2.1303 [2.0000]	106.5% { 106.7% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 600561	(6.98 , N/A) (N/A , -0.05 , N/A)	468.5	N/A	2.2506 [2.0000]	112.5% { 116.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 693066	(7.80 , N/A) (N/A , -0.05 , N/A)	489.0	N/A	2.1039 [2.0000]	105.2% { 116.8% }			
13C9_PFNA_EIS	(472.0 / 427.0) 237832	(8.52 , N/A) (N/A , -0.06 , N/A)	537.3	N/A	0.9477 [1.0000]	94.8% { 98.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 352622	(9.19 , N/A) (N/A , -0.06 , N/A)	332.3	N/A	0.8928 [1.0000]	89.3% { 98.2% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 550464	(9.66 , N/A) (N/A , -0.02 , N/A)	529.4	N/A	1.0536 [1.0000]	105.4% { 135.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (12)
Acquired: 2023/01/06 - 20:12

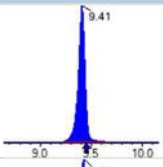
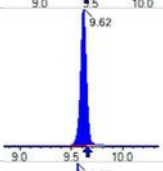
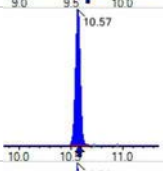
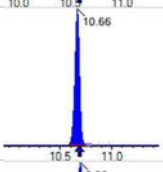
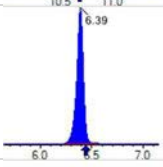
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 510382	(9.85 , N/A) (N/A , -0.01 , N/A)	448.8	N/A	0.9645 [1.0000]	96.4% { 121.2% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 327412	(10.09 , N/A) (N/A , -0.02 , N/A)	578.0	N/A	0.8647 [1.0000]	86.5% { 111.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1654433	(5.98 , N/A) (N/A , -0.05 , N/A)	587.2	N/A	1.9643 [2.0000]	98.2% { 103.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1158245	(7.89 , N/A) (N/A , -0.05 , N/A)	750.3	N/A	2.3125 [2.0000]	115.6% { 115.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1517803	(9.32 , N/A) (N/A , -0.06 , N/A)	584.2	N/A	2.1092 [2.0000]	105.5% { 126.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 855310	(5.73 , N/A) (N/A , -0.05 , N/A)	862.4	N/A	5.9920 [4.0000]	149.8% { 159.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 916043	(7.47 , N/A) (N/A , -0.05 , N/A)	708.7	N/A	4.6016 [4.0000]	115.0% { 145.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 1124194	(8.86 , N/A) (N/A , -0.06 , N/A)	759.3	N/A	5.5325 [4.0000]	138.3% { 165.7% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 724856	(10.15 , N/A) (N/A , -0.01 , N/A)	627.6	N/A	0.9038 [2.0000]	45.2% { 48.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 100993	(10.60 , N/A) (N/A , -0.02 , N/A)	501.1	N/A	0.5699 [2.0000]	28.5% { 36.2% }			
D5_NEtFOSA_EIS	(531.0 / 169.0) 83617	(10.69 , N/A) (N/A , -0.02 , N/A)	33.8	N/A	0.5187 [2.0000]	25.9% { 33.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BCA0031-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2023-01-05.dam

Quant Method: 1633 - S2023-01-05B
Path: S2023-01-06B (12)
Acquired: 2023/01/06 - 20:12

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 1263486	(9.41 , N/A) (N/A , -0.05 , N/A)	295.8	N/A	5.0605 [4.0000]	126.5% { 140.9% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 1100037	(9.62 , N/A) (N/A , -0.04 , N/A)	103.8	N/A	5.0784 [4.0000]	127.0% { 151.1% }			
D7_NMeFOSE_EIS	(623.0 / 58.9) 213834	(10.57 , N/A) (N/A , -0.01 , N/A)	720.5	N/A	7.4903 [20.0000]	37.5% { 39.9% }			
D9_NEtFOSE_EIS	(639.0 / 58.9) 94476	(10.66 , N/A) (N/A , -0.01 , N/A)	792.6	N/A	7.2597 [20.0000]	36.3% { 46.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1414778	(6.39 , N/A) (N/A , -0.05 , N/A)	426.3	N/A	8.6174 [8.0000]	107.7% { 114.1% }			

PREPARATION BATCH SUMMARY

EPA 1633

Laboratory:	APPL, LLC			Work Order:	22L0170
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Batch:	BCA0031	Batch Matrix:	Water	Preparation:	1633

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT g	FINAL VOL. ml
AF-RHMW17D-WGN01LF-2212W3	22L0170-01RE2	12/28/22 10:49	547.31	2.00
AF-RHMW17D-WGN01LF-2212W3	22L0170-01RE3	12/28/22 10:49	547.31	2.00
AF-RHMW17-WGN01LF-2212W3	22L0170-02RE2	12/28/22 10:49	521.55	2.00
AF-RHMW17-WGN01LF-2212W3	22L0170-02RE3	12/28/22 10:49	521.55	2.00
AF-RHMW04-WGN01LF-2212W3	22L0170-03RE2	12/28/22 10:49	519.51	2.00
AF-RHMW04-WGN01LF-2212W3	22L0170-03RE3	12/28/22 10:49	519.51	2.00
AF-RHMW06-WGN01LF-2212W3	22L0170-04RE2	12/28/22 10:49	524.52	2.00
AF-RHMW06-WGN01LF-2212W3	22L0170-04RE3	12/28/22 10:49	524.52	2.00
Blank	BCA0031-BLK1	01/04/23 07:38	500.00	2.00
LCS	BCA0031-BS1	01/04/23 07:38	500.00	2.00
MRL Check	BCA0031-MRL1	01/04/23 07:38	500.00	2.00

PREPARATION BENCH SHEET
Organics

BCA0031

Print Date/Time: 01/09/2023 3:29 pm

Matrix: Water

Prepared using: PFAS - 1633

Analyses
1633

Spiking Solution(s)
22L0442 PFAS - MIX 1633 10ng/mL

Surrogate Solution(s)
23A0016 MPFAC-HIF-ES 20.0ng/mL

Lab Number	Sample and Source ID	Date Due	Extract by	Prepared	Initial (g)	Final (ml)	ul Spike	ul Surrogate	Extraction Comments
22L0132-01RE2	Decon-LOC1-01	01/06/2023	01/13/2023	12/28/2022 10:49:00AM	558.15	2		200	From BBL0482 by DAG on 01/04/23
22L0132-01RE3	Decon-LOC1-01	01/06/2023	01/13/2023	12/28/2022 10:49:00AM	558.15	2		200	Added 1/5/2023 by DAG
22L0132-02RE2	Decon-LOC2-01	01/06/2023	01/13/2023	12/28/2022 10:49:00AM	504.74	2		200	From BBL0482 by DAG on 01/04/23
22L0132-02RE3	Decon-LOC2-01	01/06/2023	01/13/2023	12/28/2022 10:49:00AM	504.74	2		200	Added 1/5/2023 by DAG
22L0170-01RE2	AF-RHMW17D-WGN01LF-2212W3	01/05/2023	01/19/2023	12/28/2022 10:49:00AM	547.31	2		200	"Report relevant surrogates"
22L0170-01RE3	AF-RHMW17D-WGN01LF-2212W3	01/05/2023	01/19/2023	12/28/2022 10:49:00AM	547.31	2		200	"Report relevant surrogates"
22L0170-02RE2	AF-RHMW17-WGN01LF-2212W3	01/05/2023	01/19/2023	12/28/2022 10:49:00AM	521.55	2		200	"Report relevant surrogates"
22L0170-02RE3	AF-RHMW17-WGN01LF-2212W3	01/05/2023	01/19/2023	12/28/2022 10:49:00AM	521.55	2		200	"Report relevant surrogates"
22L0170-03RE2	AF-RHMW04-WGN01LF-2212W3	01/05/2023	01/19/2023	12/28/2022 10:49:00AM	519.51	2		200	"Report relevant surrogates"
22L0170-03RE3	AF-RHMW04-WGN01LF-2212W3	01/05/2023	01/19/2023	12/28/2022 10:49:00AM	519.51	2		200	"Report relevant surrogates"
22L0170-04RE2	AF-RHMW06-WGN01LF-2212W3	01/05/2023	01/19/2023	12/28/2022 10:49:00AM	524.52	2		200	"Report relevant surrogates"
22L0170-04RE3	AF-RHMW06-WGN01LF-2212W3	01/05/2023	01/19/2023	12/28/2022 10:49:00AM	524.52	2		200	"Report relevant surrogates"
22L0177-01	AF-RHMW10-WGN01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	510.4	2		200	"Report relevant surrogates"
22L0177-01RE1	AF-RHMW10-WGN01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	10.4	2		200	"Report relevant surrogates"
22L0177-02	AF-RHMW10-WGFD01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	520.68	2		200	"Report relevant surrogates"
22L0177-02RE1	AF-RHMW10-WGFD01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	520.68	2		200	"Report relevant surrogates"
22L0177-03	AF-HDMW225303-WGN01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	555.51	2		200	"Report relevant surrogates"
22L0177-03RE1	AF-HDMW225303-WGN01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	555.51	2		200	"Report relevant surrogates"
22L0177-04	AF-RHMW03-WGN01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	561.15	2		200	"Report relevant surrogates"
22L0177-04RE1	AF-RHMW03-WGN01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	561.15	2		200	"Report relevant surrogates"

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

Table of Contents

PREPARATION BENCH SHEET
Organics

Print Date/Time: 01/09/2023 3:29 pm

BCA0031

(Continued)

Matrix: Water

Prepared using: PFAS - 1633

Analyses	Spiking Solution(s)	Surrogate Solution(s)
1633	22L0442 PFAS - MIX 1633 10ng/mL	23A0016 MPFAC-HIF-ES 20.0ng/mL

22L0177-05	AF-RHMW02-WGN01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	584.51	2		200	"Report relevant surrogates"
22L0177-05RE1	AF-RHMW02-WGN01LF-2212W4	01/06/2023	01/24/2023	1/4/2023 7:38:00AM	584.51	2		200	"Report relevant surrogates"
22L0182-01	AF-RHMW17D-WGN01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	547.31	2		200	"Report relevant surrogates"
22L0182-01RE1	AF-RHMW17D-WGN01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	547.31	2		200	"Report relevant surrogates"
22L0182-02	AF-RHMW17D-WQEB01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	534.91	2		200	"Report relevant surrogates"
22L0182-02RE1	AF-RHMW17D-WQEB01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	534.91	2		200	"Report relevant surrogates"
22L0182-03	AF-RHMW12A-WGN01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	553.15	2		200	"Report relevant surrogates"
22L0182-03RE1	AF-RHMW12A-WGN01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	553.15	2		200	"Report relevant surrogates"
22L0182-04	AF-RHMW16-WGN01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	524.19	2		200	"Report relevant surrogates"
22L0182-04RE1	AF-RHMW16-WGN01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	524.19	2		200	"Report relevant surrogates"
22L0182-05	AF-RHMW17-WGN01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	559.3	2		200	"Report relevant surrogates"
22L0182-05RE1	AF-RHMW17-WGN01LF-2212W4	01/09/2023	01/25/2023	1/4/2023 7:38:00AM	559.3	2		200	"Report relevant surrogates"
23A0002-01	AF-RHMW225401-WGN01B-2212W4	01/10/2023	01/26/2023	1/4/2023 7:38:00AM	539.19	2		200	"Report relevant surrogates"
23A0002-01RE1	AF-RHMW225401-WGN01B-2212W4	01/10/2023	01/26/2023	1/4/2023 7:38:00AM	539.19	2		200	"Report relevant surrogates"
23A0002-02	AF-RHMW04-WGN01LF-2212W4	01/10/2023	01/26/2023	1/4/2023 7:38:00AM	559.95	2		200	"Report relevant surrogates"
23A0002-02RE1	AF-RHMW04-WGN01LF-2212W4	01/10/2023	01/26/2023	1/4/2023 7:38:00AM	559.95	2		200	"Report relevant surrogates"
23A0002-03	AF-RHMW06-WGN01LF-2212W4	01/10/2023	01/26/2023	1/4/2023 7:38:00AM	575.51	2		200	"Report relevant surrogates"
23A0002-03RE1	AF-RHMW06-WGN01LF-2212W4	01/10/2023	01/26/2023	1/4/2023 7:38:00AM	575.51	2		200	"Report relevant surrogates"
BCA0031-BLK1	Blank			1/4/2023 7:38:00AM	500	2	0	200	
BCA0031-BS1	LCS			1/4/2023 7:38:00AM	500	2	200	200	

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

Table of Contents

PREPARATION BENCH SHEET
Organics

Print Date/Time: 01/09/2023 3:29 pm

BCA0031

(Continued)

Matrix: Water

Prepared using: PFAS - 1633

Analyses	Spiking Solution(s)	Surrogate Solution(s)
1633	22L0442 PFAS - MIX 1633 10ng/mL	23A0016 MPFAC-HIF-ES 20.0ng/mL

BCA0031-MRL1	MRL Check			1/4/2023 7:38:00AM	500	2	20	200	

Start Date/Time _____

StopDate/Time _____

Reagents

Standard	Description	LotNum
22K0511	Reagent -0.3M Formic Acid	M13H051
22L0094	Reagent - 0.05MFA wash	x
22L0360	Am. Ac. preservative	P28I056
23A0082	Reagent - 1.0% Ammonia Hydroxide	219481

Batch Comments:

Spiked by:LYA 1/4/23 9:42
Balance #: WB2
Cartridge:
Concentration: 1/5/23 9:51-3:04
Witness: DAG

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

Table of Contents

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
Sequence:	SC00059	Instrument:	Saphira
Calibration:	2302001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	SC00059-CAL1	S2023-01-05B (1)	01/05/23 18:20
Cal Standard	SC00059-CAL2	S2023-01-05B (2)	01/05/23 18:33
Cal Standard	SC00059-CAL3	S2023-01-05B (3)	01/05/23 18:46
Cal Standard	SC00059-CAL4	S2023-01-05B (4)	01/05/23 18:59
Cal Standard	SC00059-CAL5	S2023-01-05B (5)	01/05/23 19:11
Cal Standard	SC00059-CAL6	S2023-01-05B (6)	01/05/23 19:24
Cal Standard	SC00059-CAL7	S2023-01-05B (7)	01/05/23 19:37
Cal Standard	SC00059-CAL8	S2023-01-05B (8)	01/05/23 19:50
Initial Cal Blank	SC00059-ICB1	S2023-01-05B (9)	01/05/23 20:03
Secondary Cal Check	SC00059-SCV1	S2023-01-05B (10)	01/05/23 20:16

INJECTION LOG - ANALYSIS SEQUENCE SUMMARY

EPA 1633

Laboratory:	APPL, LLC	SDG:	
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Sequence:	SC00069	Instrument:	Saphira
Calibration:	2302001		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Blank	SC00069-CCB1	S2023-01-06B (1)	01/06/23 17:11
Low Cal Check	SC00069-LCV1	S2023-01-06B (55)	01/06/23 17:37
Calibration Check	SC00069-CCV1	S2023-01-06B (3)	01/06/23 17:50
Calibration Blank	SC00069-CCB2	S2023-01-06B (4)	01/06/23 18:29
Calibration Check	SC00069-CCV2	S2023-01-06B (8)	01/06/23 19:20
Calibration Blank	SC00069-CCB3	S2023-01-06B (9)	01/06/23 19:33
Blank	BCA0031-BLK1	S2023-01-06B (10)	01/06/23 19:46
LCS	BCA0031-BS1	S2023-01-06B (11)	01/06/23 19:59
MRL Check	BCA0031-MRL1	S2023-01-06B (12)	01/06/23 20:12
AF-RHMW17D-WGN01LF-2212W3	22L0170-01RE2	S2023-01-06B (17)	01/06/23 21:16
AF-RHMW17D-WGN01LF-2212W3	22L0170-01RE3	S2023-01-06B (18)	01/06/23 21:29
AF-RHMW17-WGN01LF-2212W3	22L0170-02RE2	S2023-01-06B (19)	01/06/23 21:42
AF-RHMW17-WGN01LF-2212W3	22L0170-02RE3	S2023-01-06B (20)	01/06/23 21:55
AF-RHMW04-WGN01LF-2212W3	22L0170-03RE2	S2023-01-06B (21)	01/06/23 22:08
AF-RHMW04-WGN01LF-2212W3	22L0170-03RE3	S2023-01-06B (22)	01/06/23 22:21
AF-RHMW06-WGN01LF-2212W3	22L0170-04RE2	S2023-01-06B (23)	01/06/23 22:34
AF-RHMW06-WGN01LF-2212W3	22L0170-04RE3	S2023-01-06B (24)	01/06/23 22:47
Calibration Check	SC00069-CCV3	S2023-01-06B (31)	01/07/23 00:17
Calibration Blank	SC00069-CCB4	S2023-01-06B (32)	01/07/23 00:30
Calibration Check	SC00069-CCV4	S2023-01-06B (53)	01/07/23 05:00
Calibration Blank	SC00069-CCB5	S2023-01-06B (54)	01/07/23 05:13

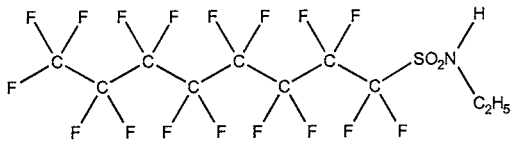
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide
LOT NUMBER: NEtFOSA0821M

STRUCTURE:

CAS #: 4151-50-2



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

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:

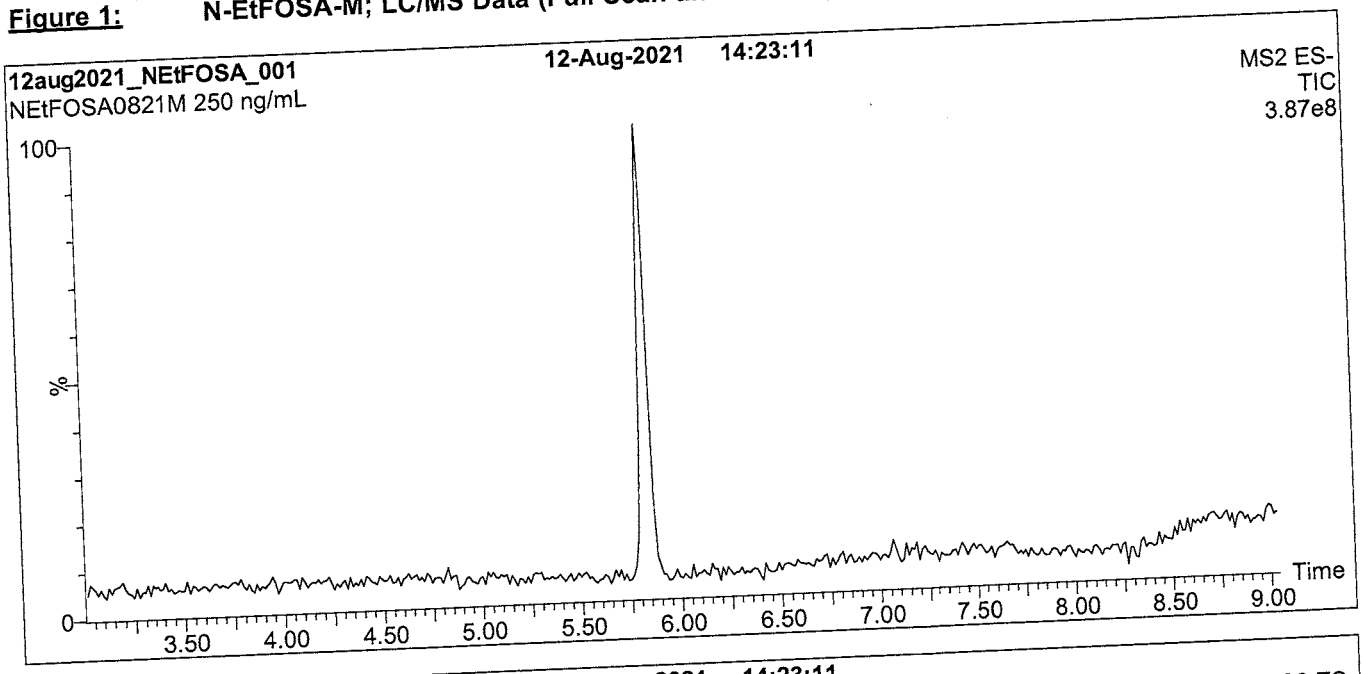
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

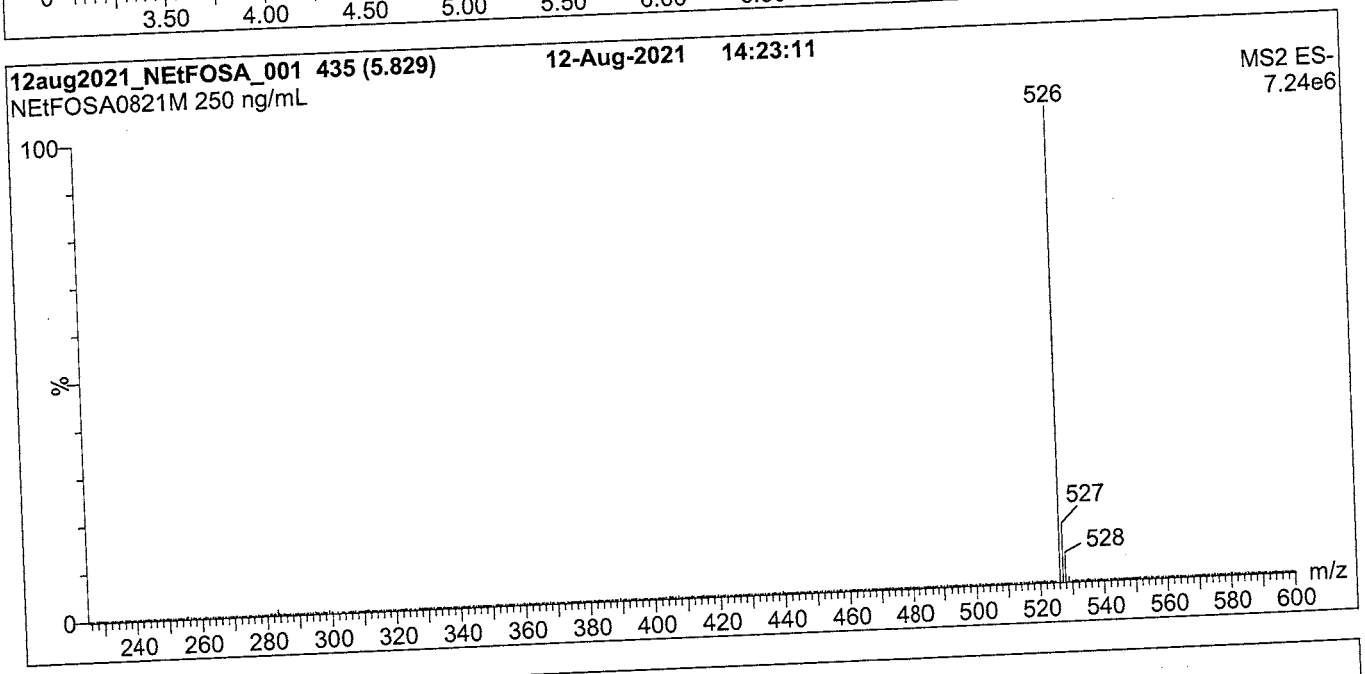
CALA Testing Accreditation No. A1226

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-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

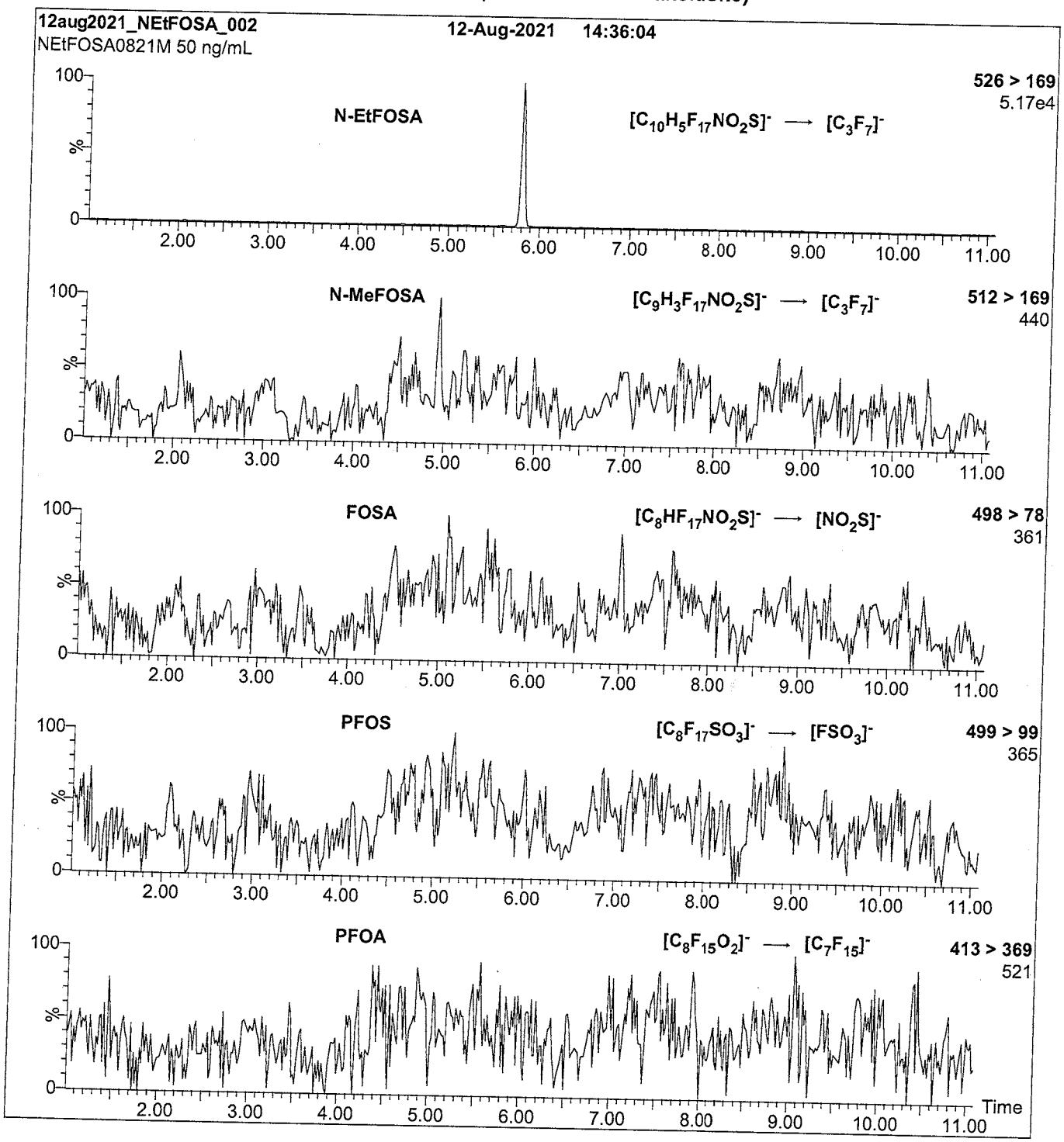
Flow: 300 µL/min

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

Figure 2: **N-EtFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (N-EtFOSA-M)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.29e-3
Collision Energy (eV) = 24

Analytical Standard Record

21J0007

Description:	PFAS - SAS N-EtFOSA 50ug/mL	Expires:	08/12/2026
Standard Type:	Analyte Spike	Prepared:	08/12/2021
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: NEtFOSA0821M)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 16:05 by HGH

Analyte	Parent	CAS Number	Concentration	Units
N-ETFOSA		4151-50-2	50	ug/mL

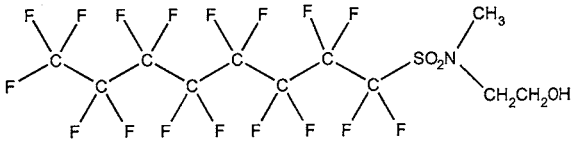
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M **LOT NUMBER:** NMeFOSE0921M

COMPOUND: 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE: **CAS #:** 24448-09-7



MOLECULAR FORMULA:	$C_{11}H_8F_{17}NO_3S$	**MOLECULAR WEIGHT:**	557.22
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/22/2021 (HRGC/LRMS) 09/23/2021 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	09/23/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/28/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

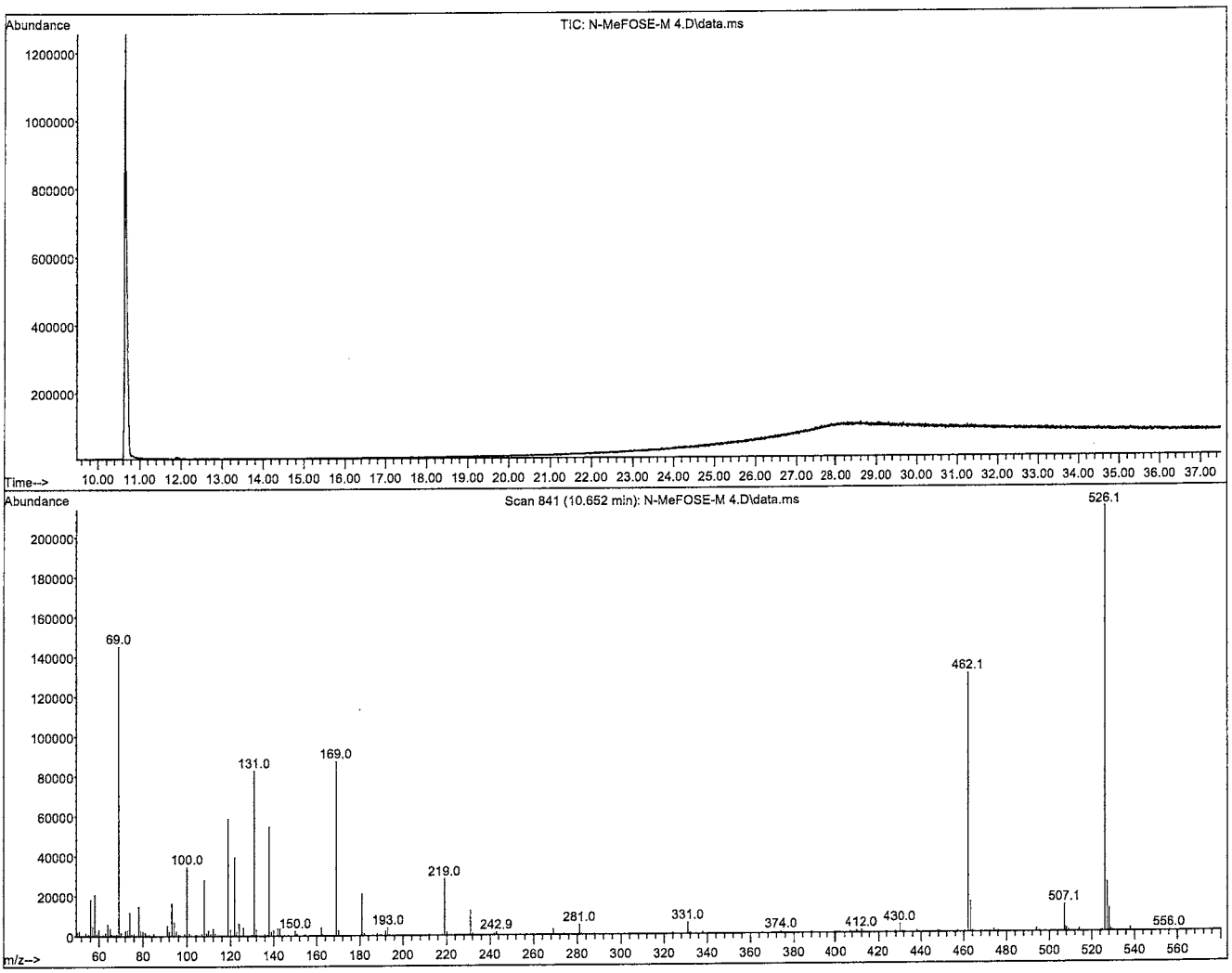
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

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-MeFOSE-M; HRGC/LRMS Data (Full Scan and Mass Spectrum)**



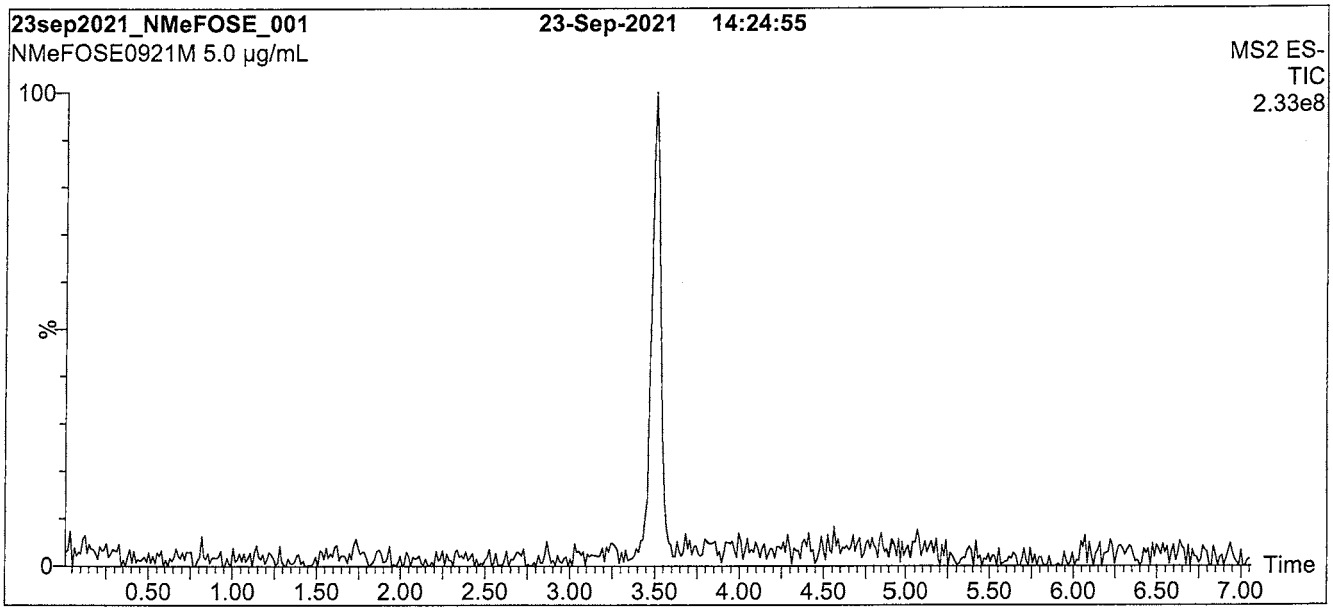
Conditions for Figure 1:

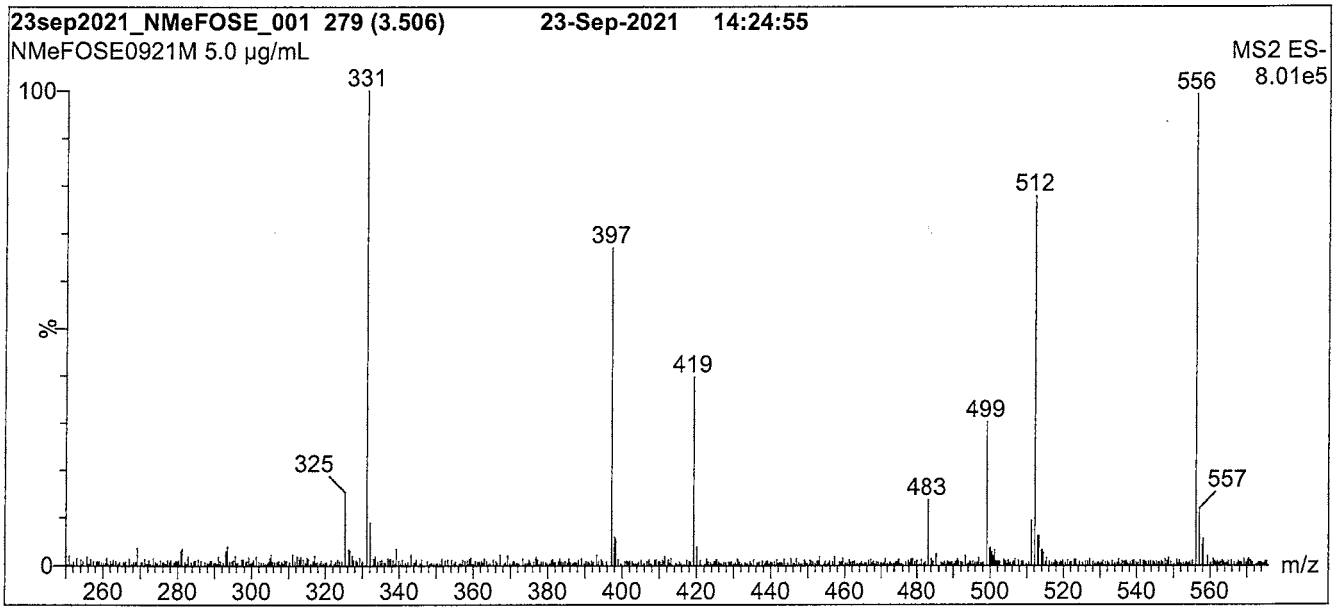
Agilent 7890A HRGC
Agilent 5975C MSD

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

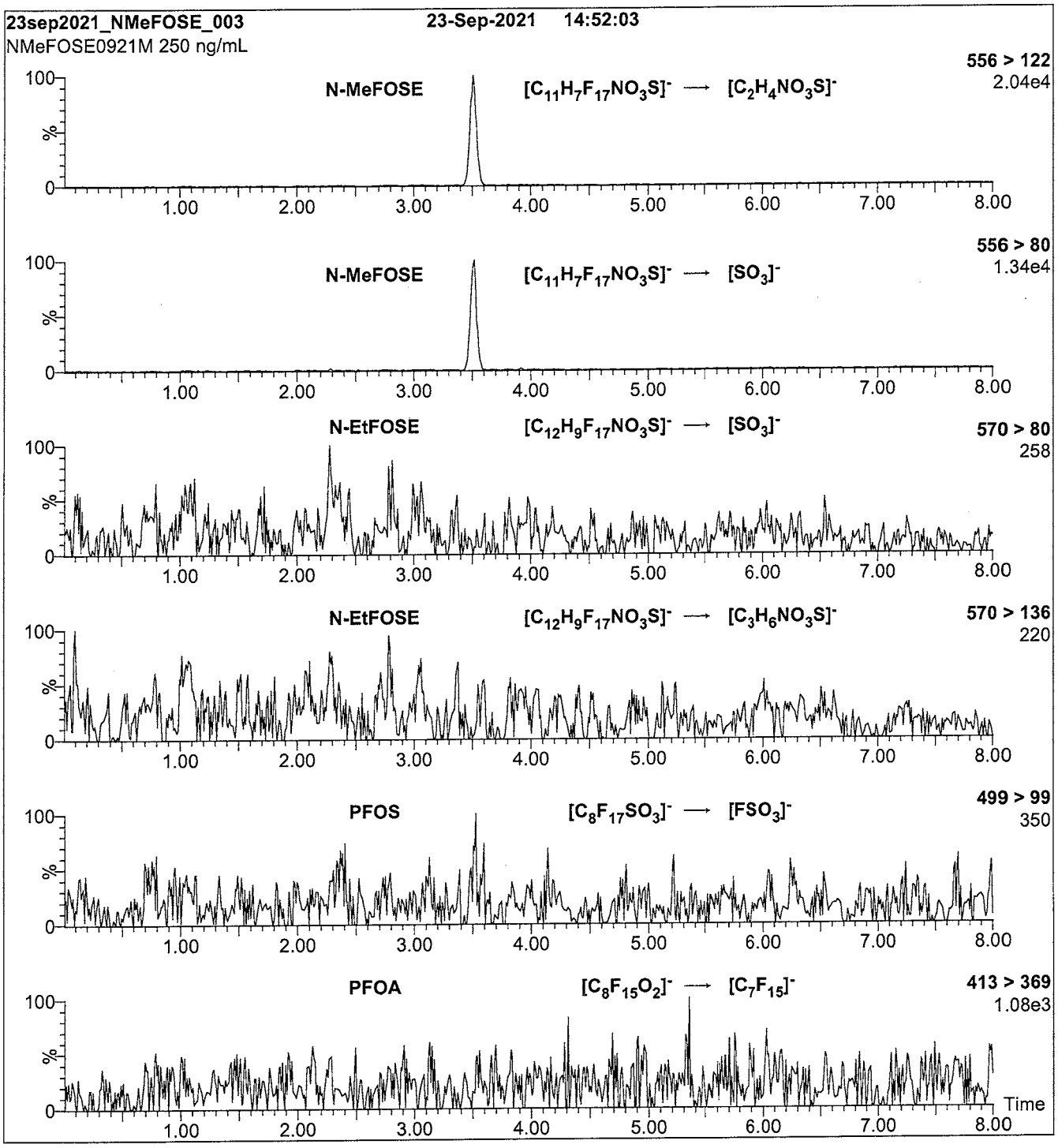
Flow: 300 µL/min

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

21J0014

Description:	PFAS - SAS N-MeFOSE 50ug/mL	Expires:	09/23/2026
Standard Type:	Analyte Spike	Prepared:	09/22/2021
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: NMeFOSE0921M)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 16:06 by HGH

Analyte	Parent	CAS Number	Concentration	Units
N-MEFOSE		24448-09-7	50	ug/mL

Analytical Standard Record

21J0014

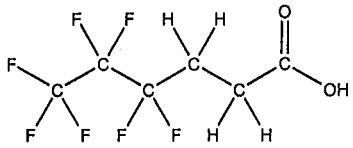
Description:	PFAS - SAS N-MeFOSE 50ug/mL	Expires:	09/23/2026
Standard Type:	Analyte Spike	Prepared:	09/22/2021
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: NMeFOSE0921M)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 16:06 by HGH

Analyte	Parent	CAS Number	Concentration	Units
N-MEFOSE		24448-09-7	50	ug/mL

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:

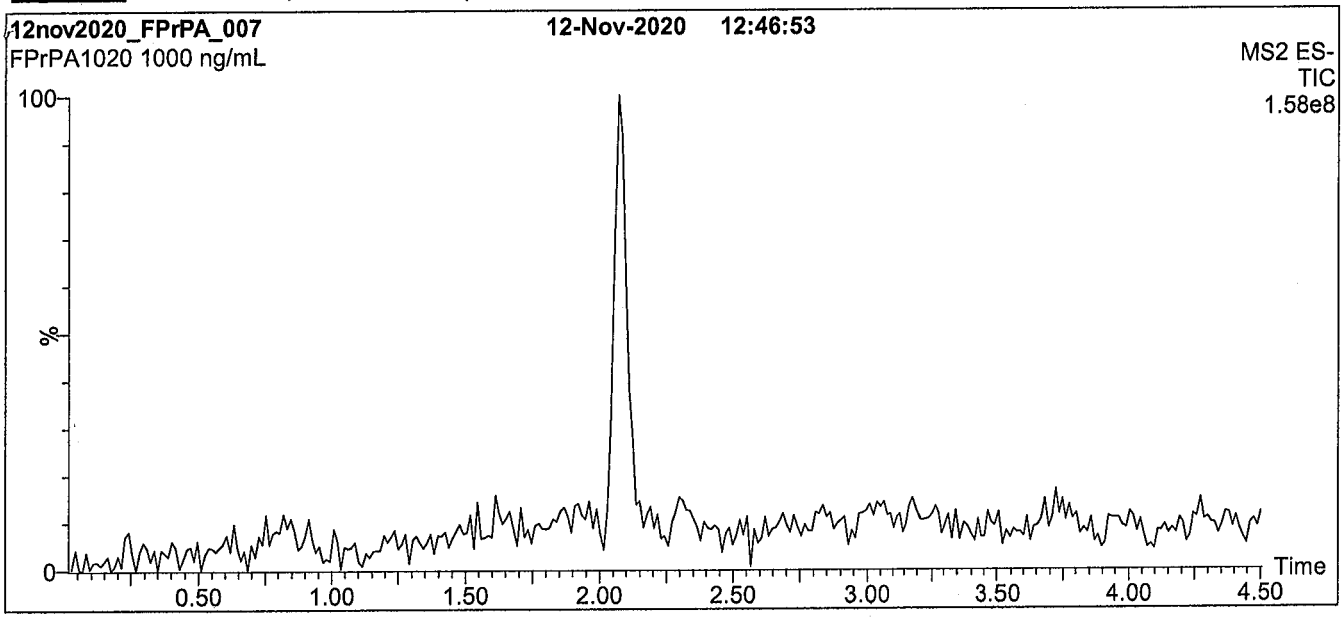
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

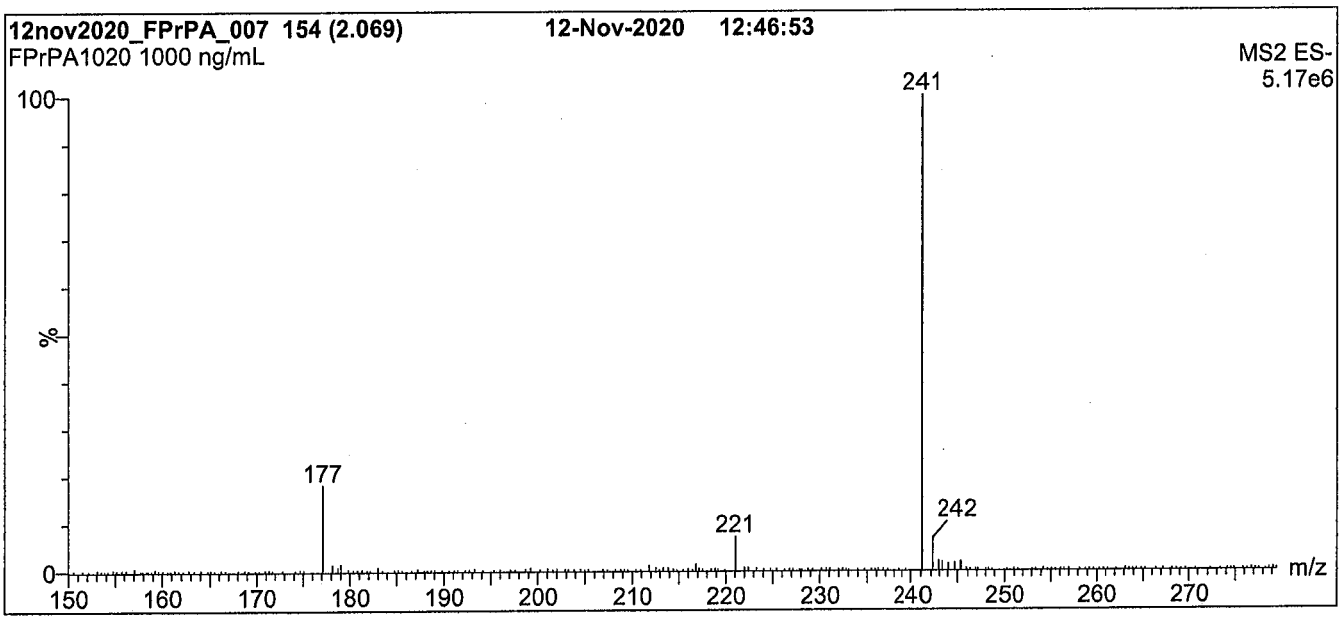
CALA Testing Accreditation No. A1226

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

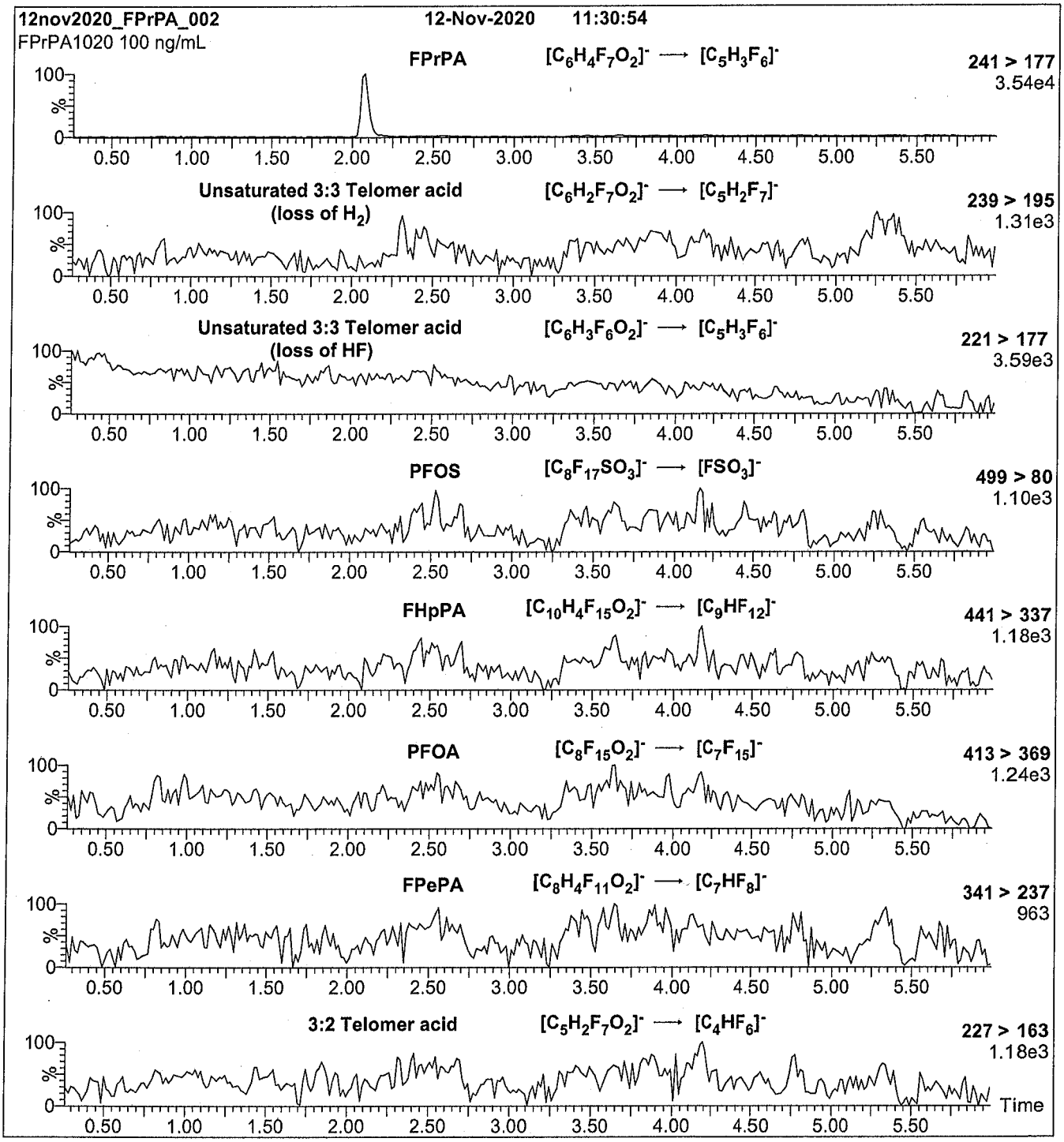
Flow: 300 µL/min

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

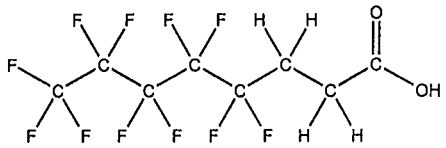
CERTIFICATE OF ANALYSIS DOCUMENTATION

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:

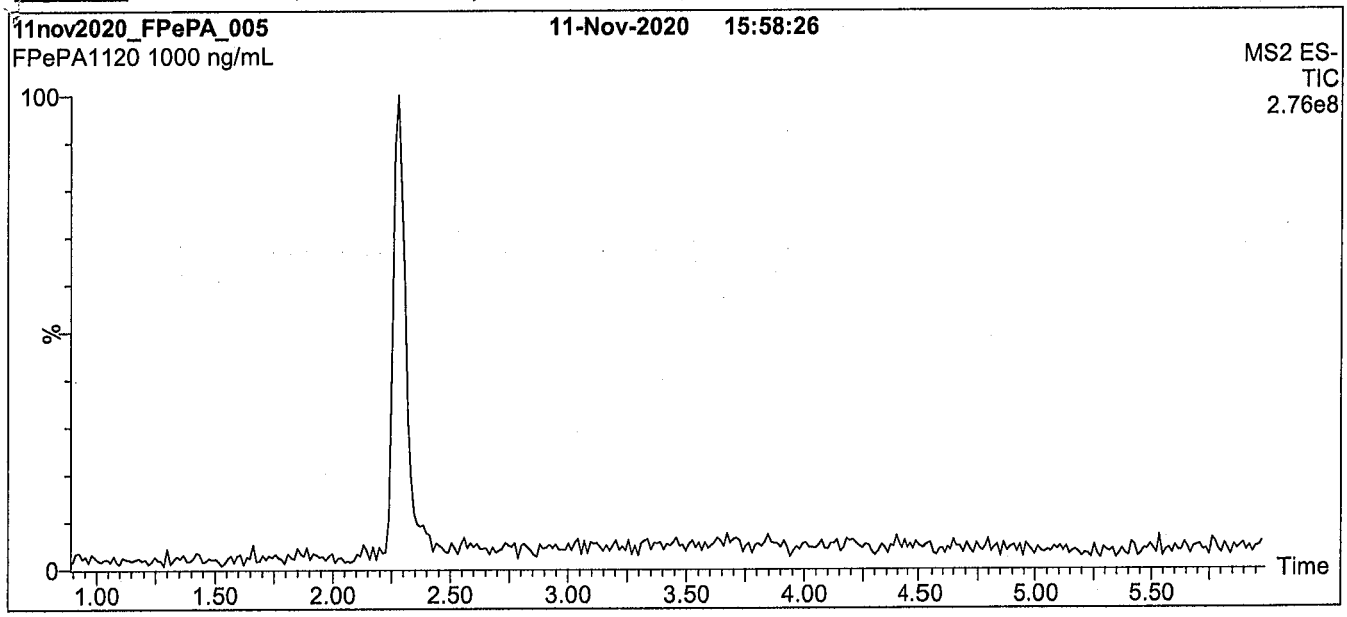
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

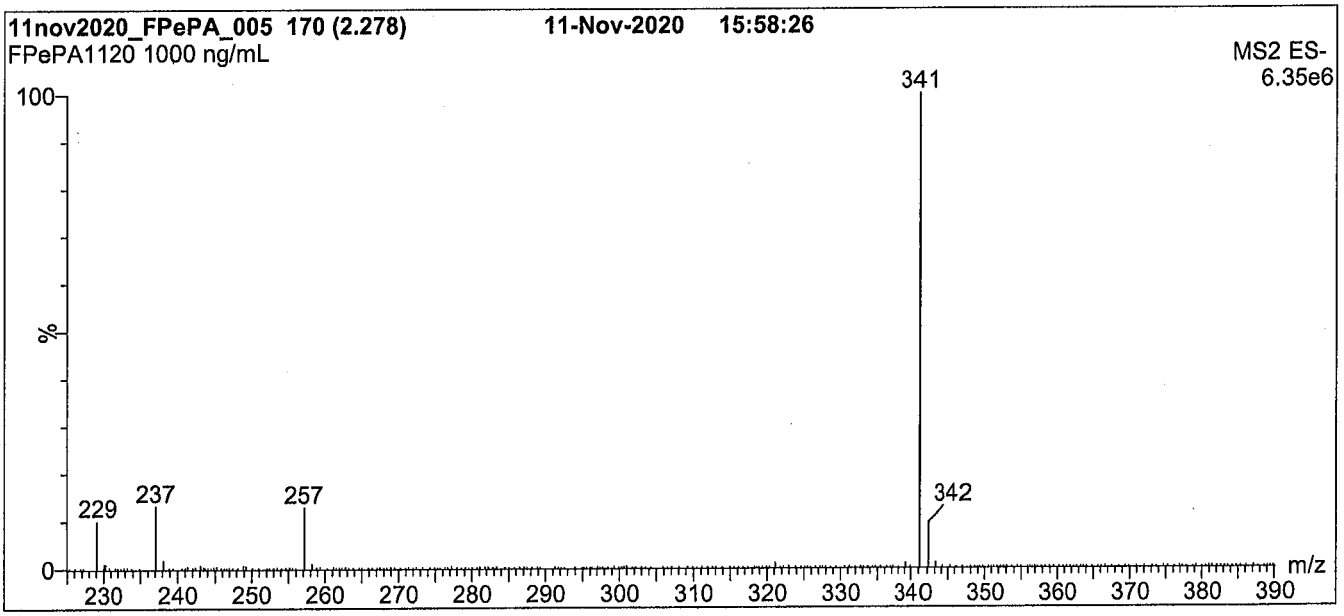
CALA Testing Accreditation No. A1226

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

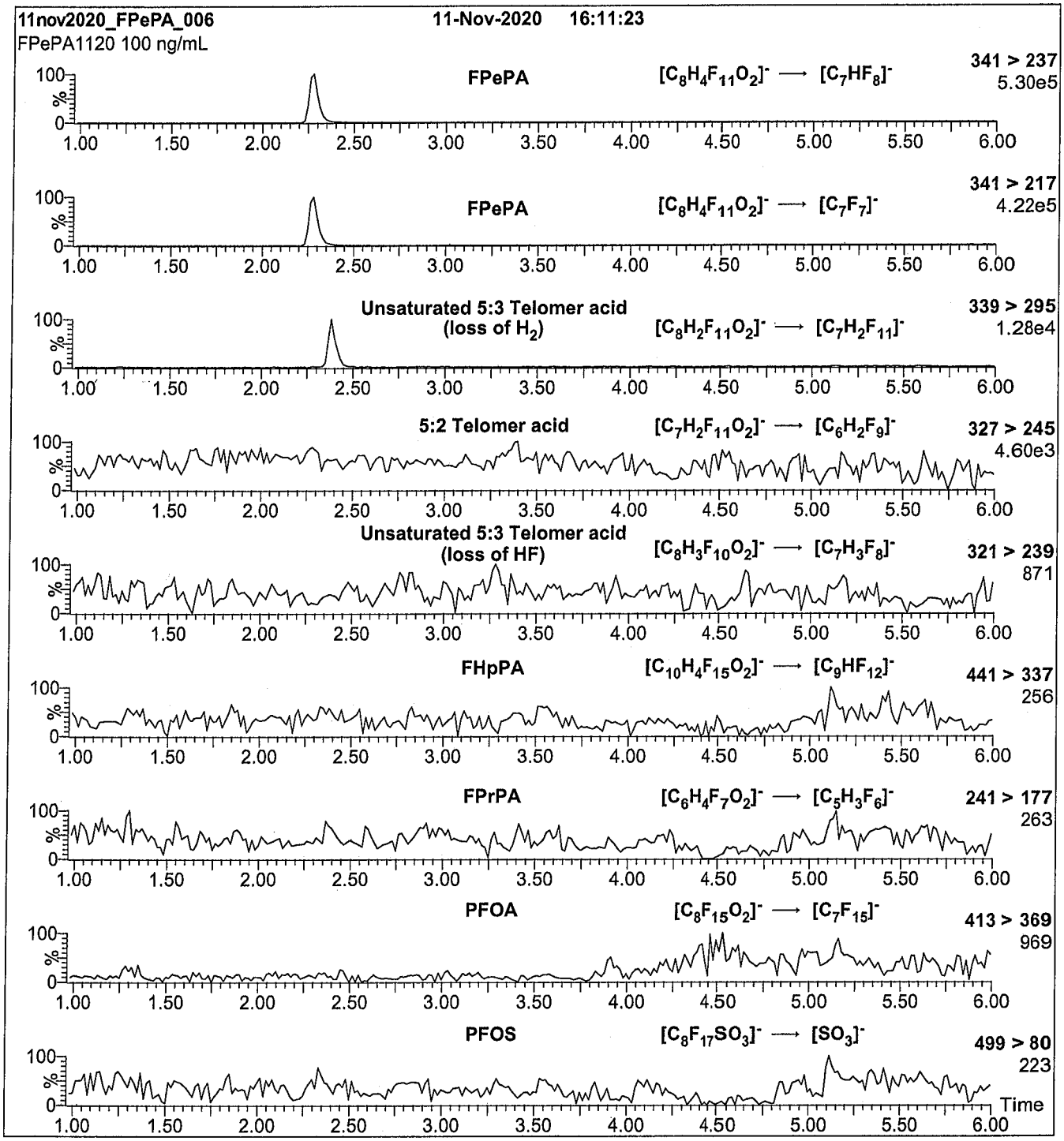
Flow: 300 µL/min

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

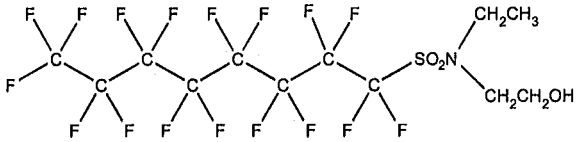
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSE-M **LOT NUMBER:** NEtFOSE0921M

COMPOUND: 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol

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:

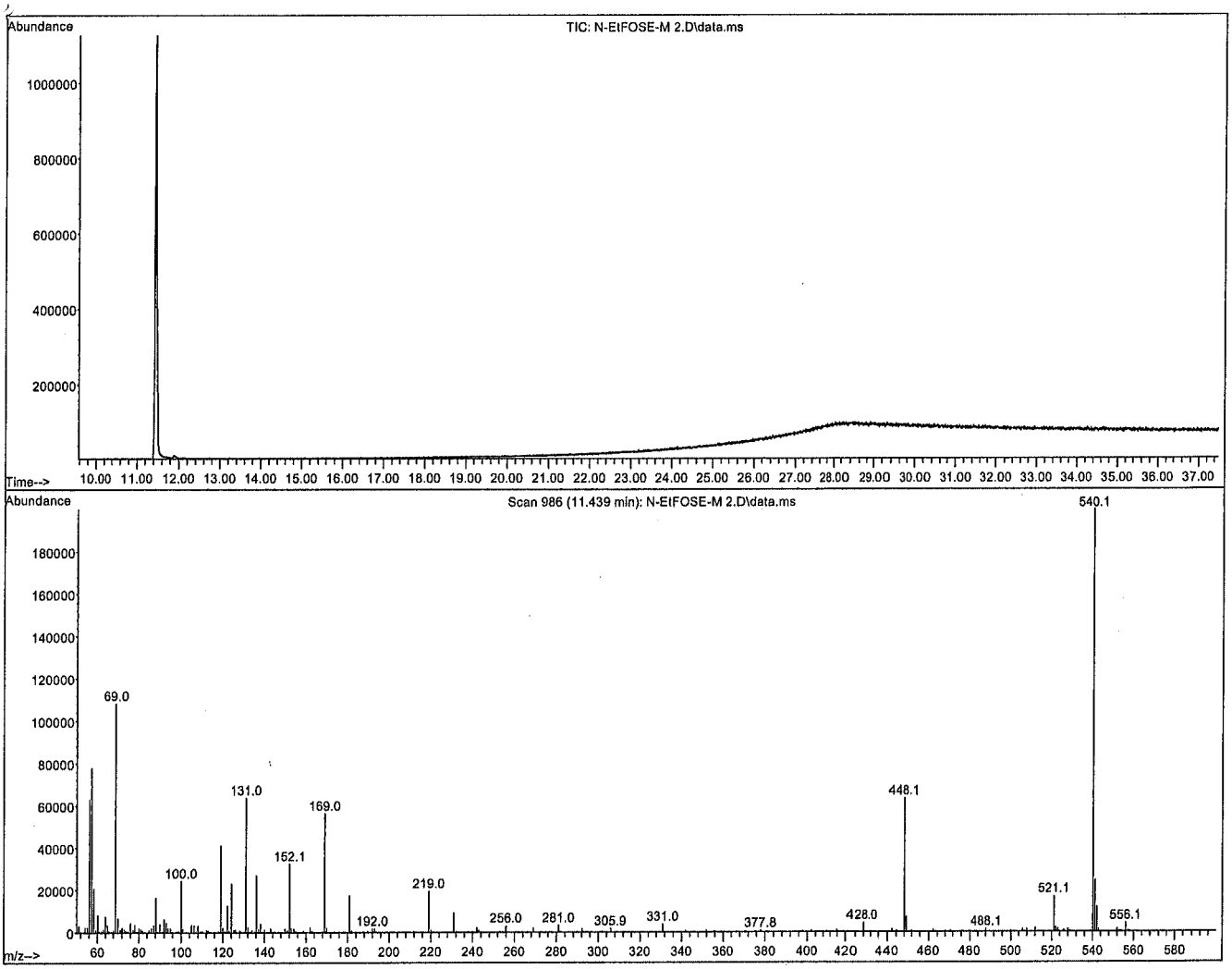
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED 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-EtFOSE-M; HRGC/LRMS Data (Full Scan and Mass Spectrum)**



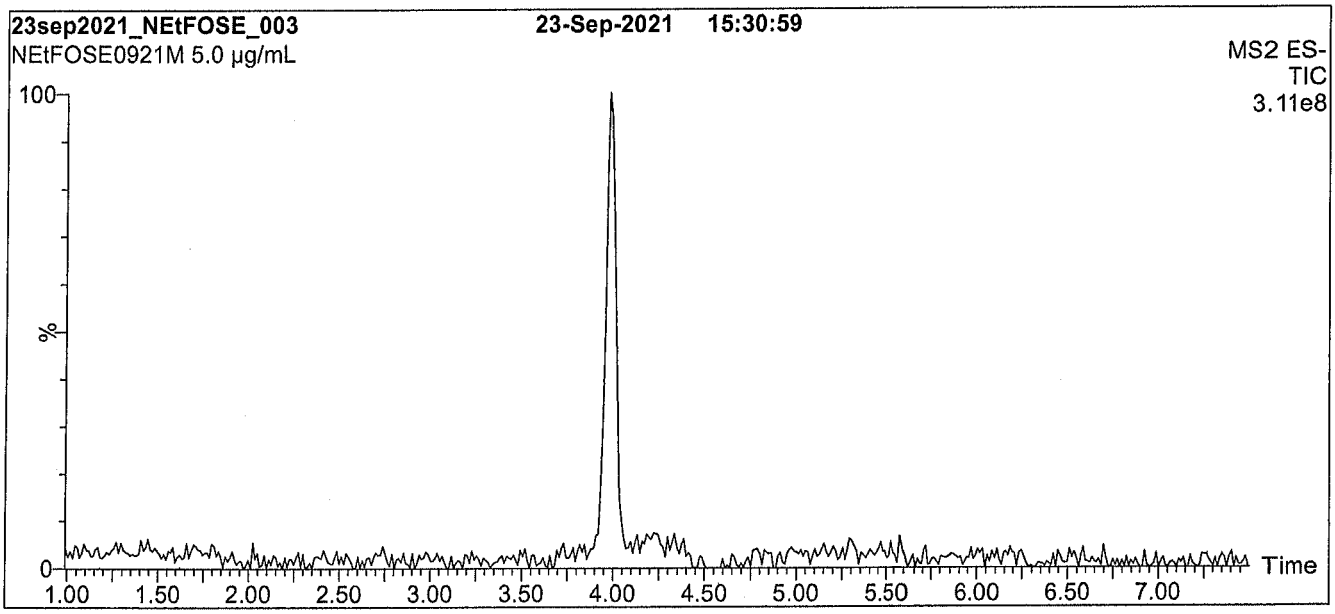
Conditions for Figure 1:

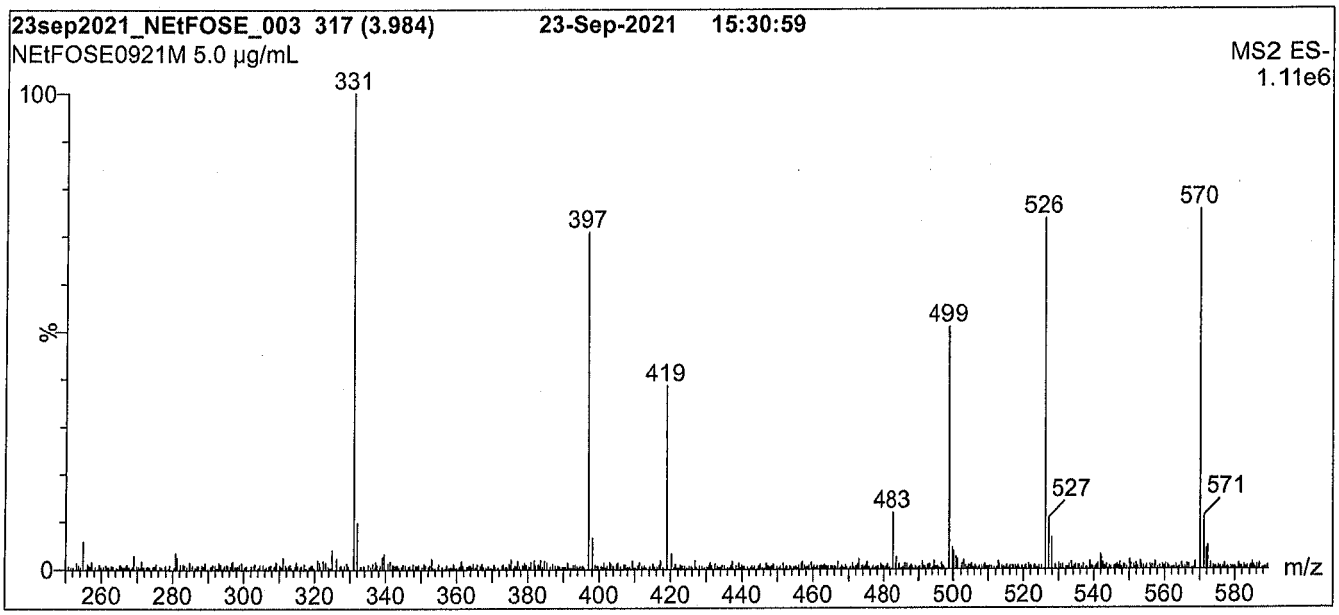
Agilent 7890A HRGC
Agilent 5975C MSD

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

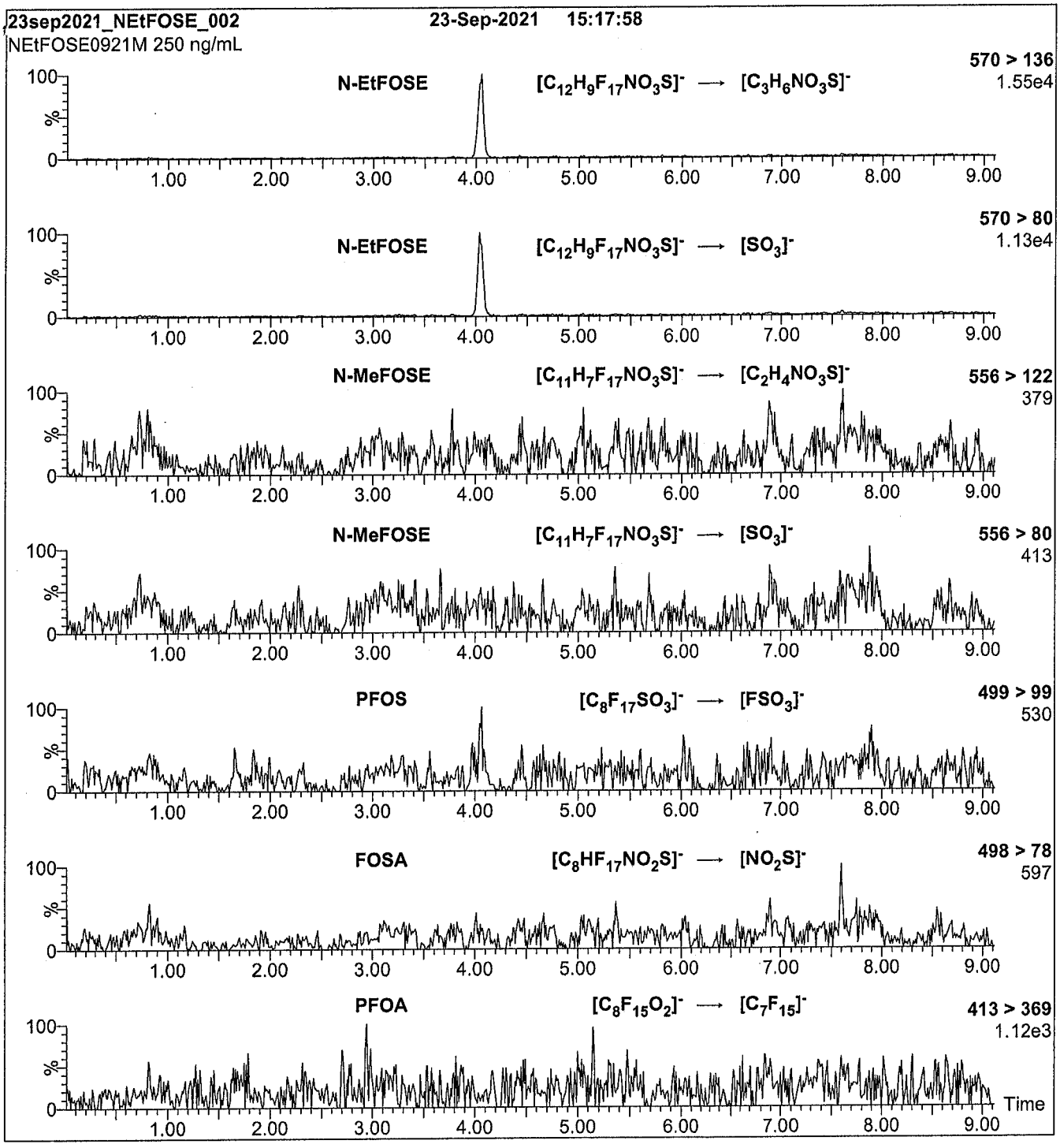
Flow: 300 µL/min

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

21L0006

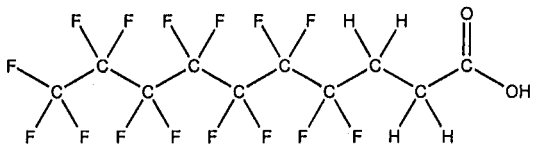
Description:	PFAS - SAS EtFOSE 50ug/mL	Expires:	06/05/2022
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Hart Hedgpeth
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 17:22 by HGH
Comments:	5:3 FTCA 50.0ug/mL		

Analyte	Parent	CAS Number	Concentration	Units
N-ETFOSE		1691-99-2	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:

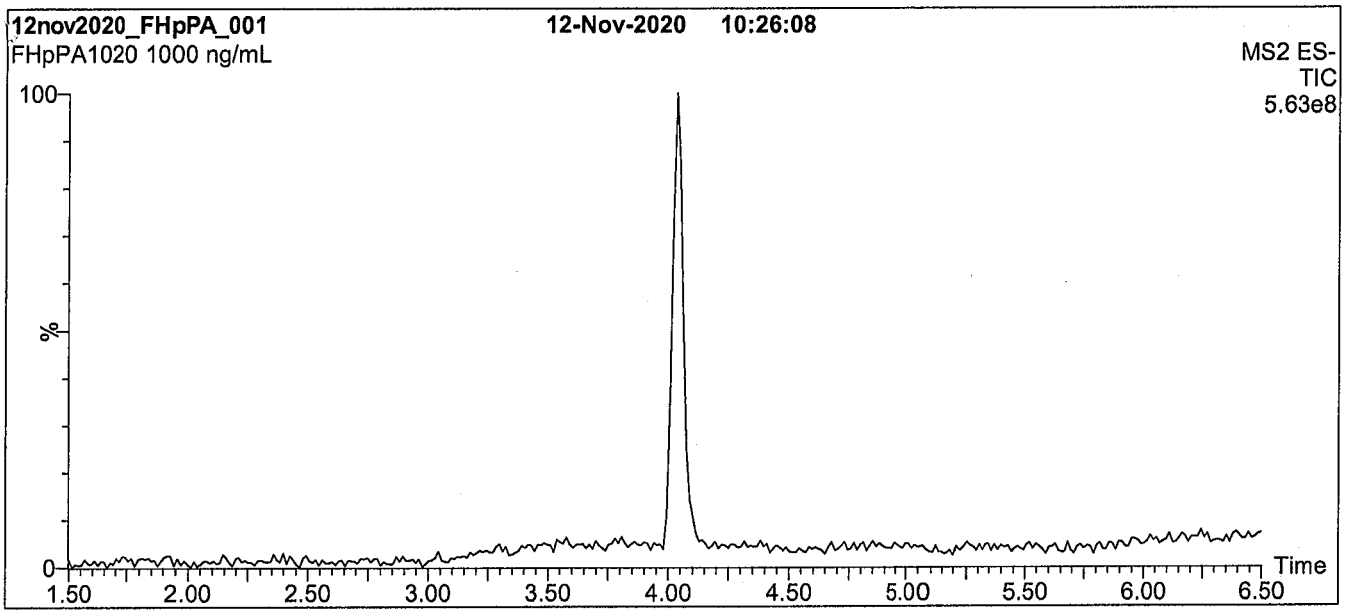
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

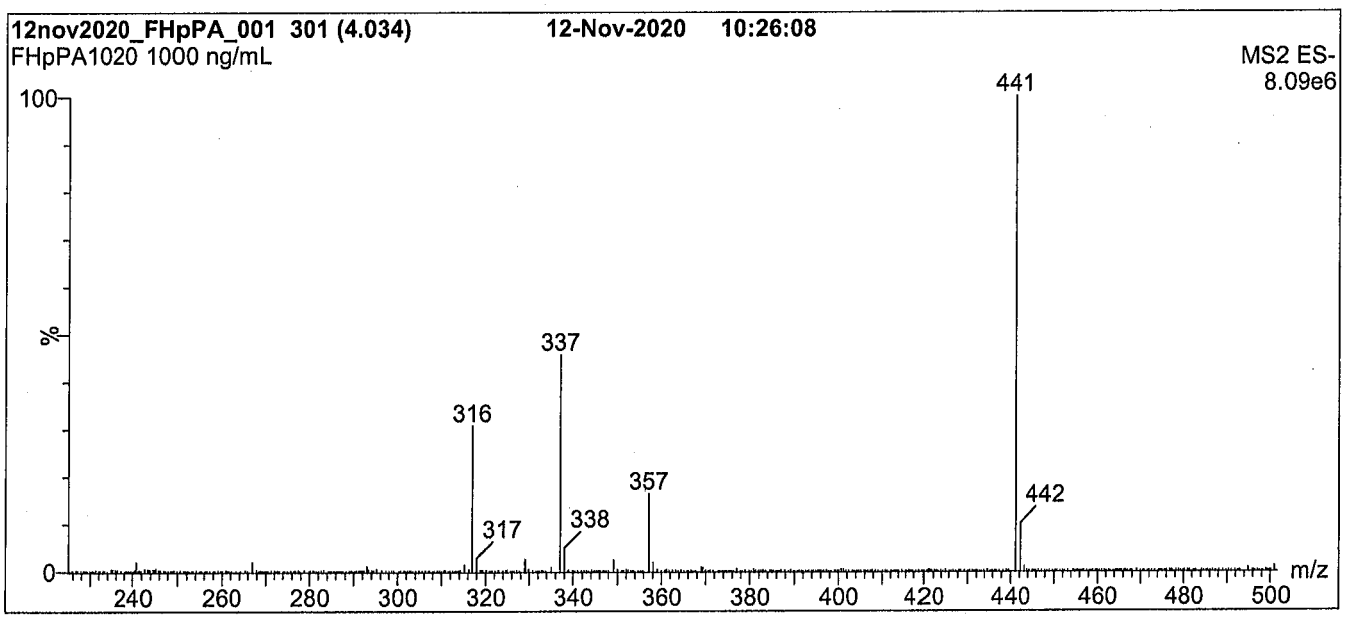
CALA Testing Accreditation No. A1226

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

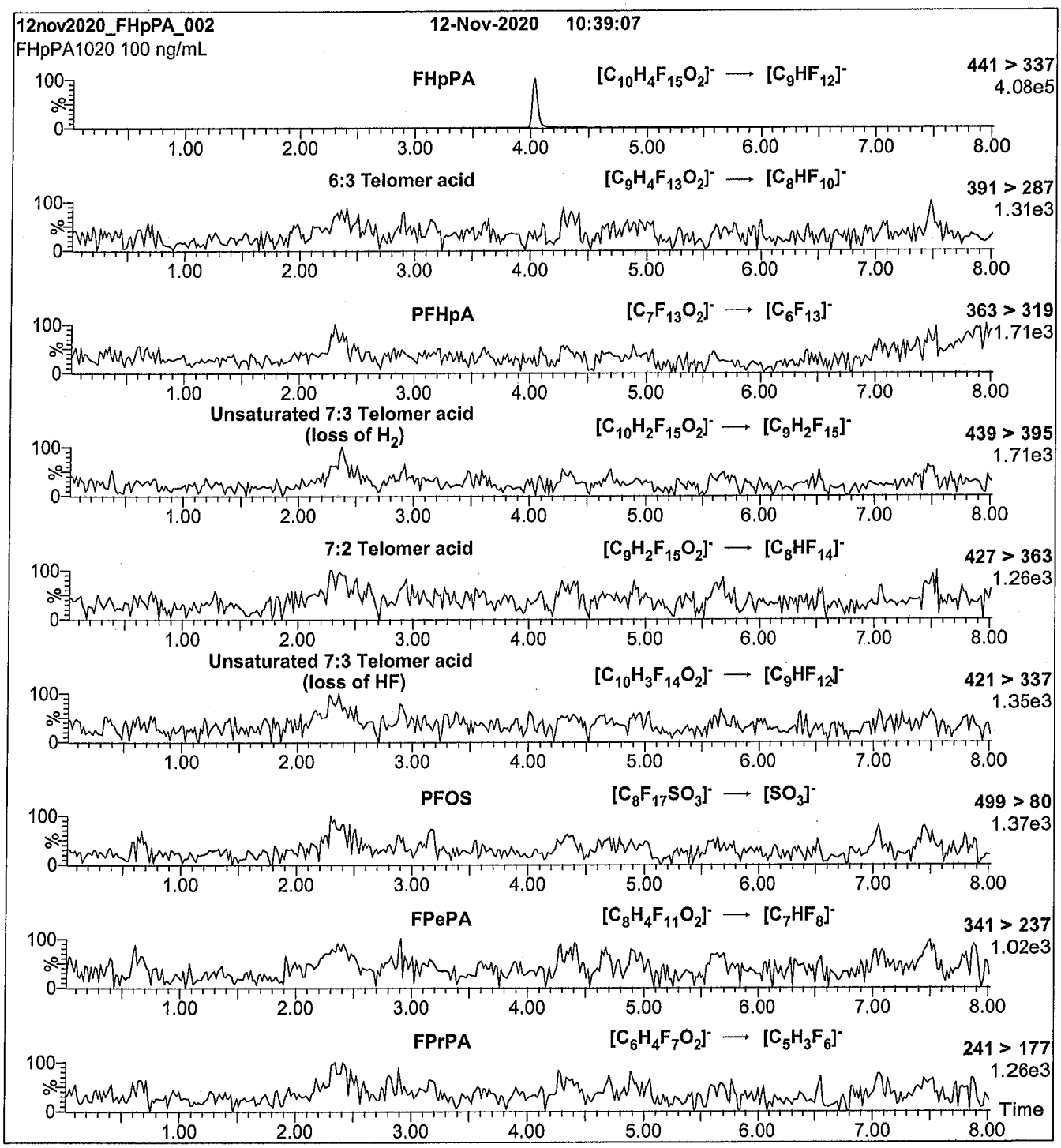
Flow: 300 µL/min

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

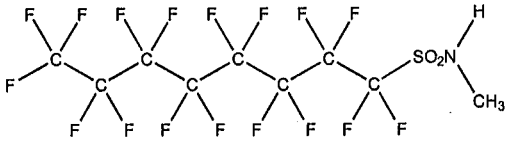
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M
COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA0721M

STRUCTURE:

CAS #: 31506-32-8



MOLECULAR FORMULA:	$C_9H_4F_{17}NO_2S$	**MOLECULAR WEIGHT:**	513.17
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	08/03/2021		
EXPIRY DATE: (mm/dd/yyyy)	08/03/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/04/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

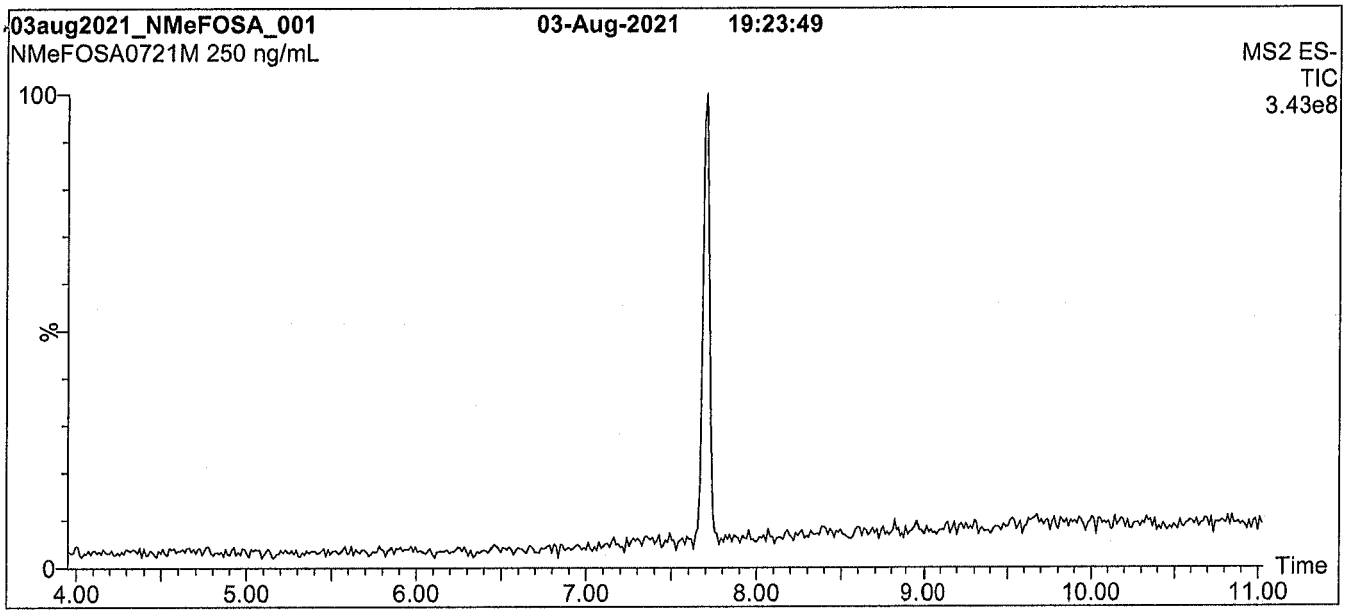
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

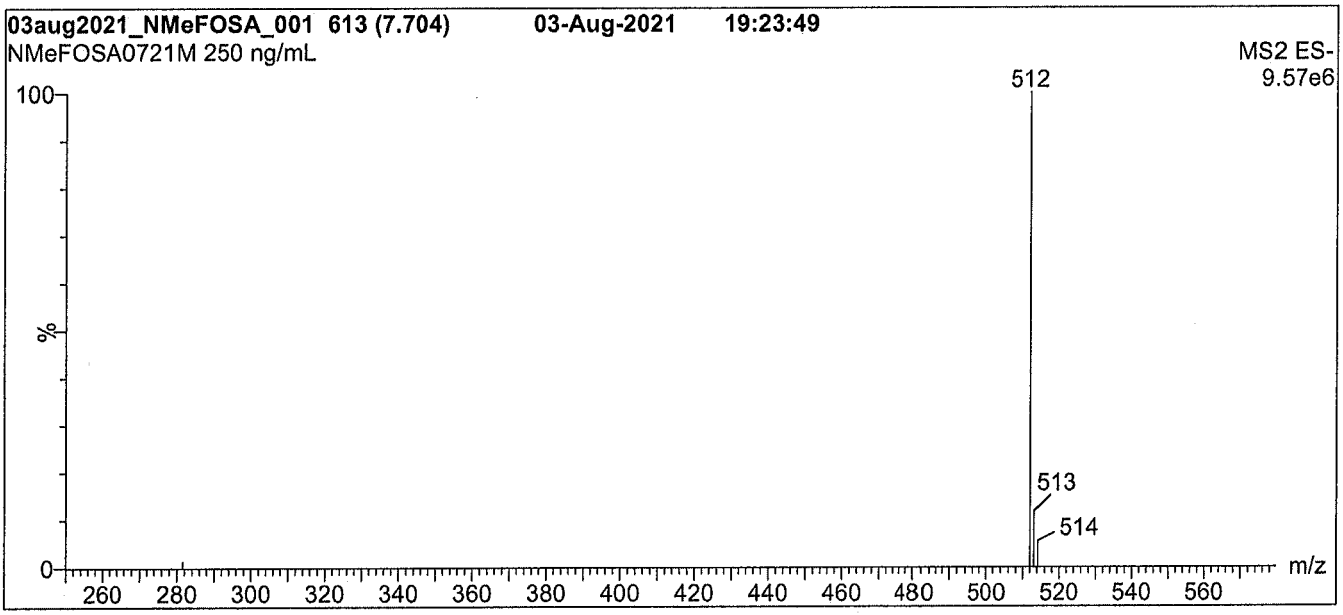
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **N-MeFOSA-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

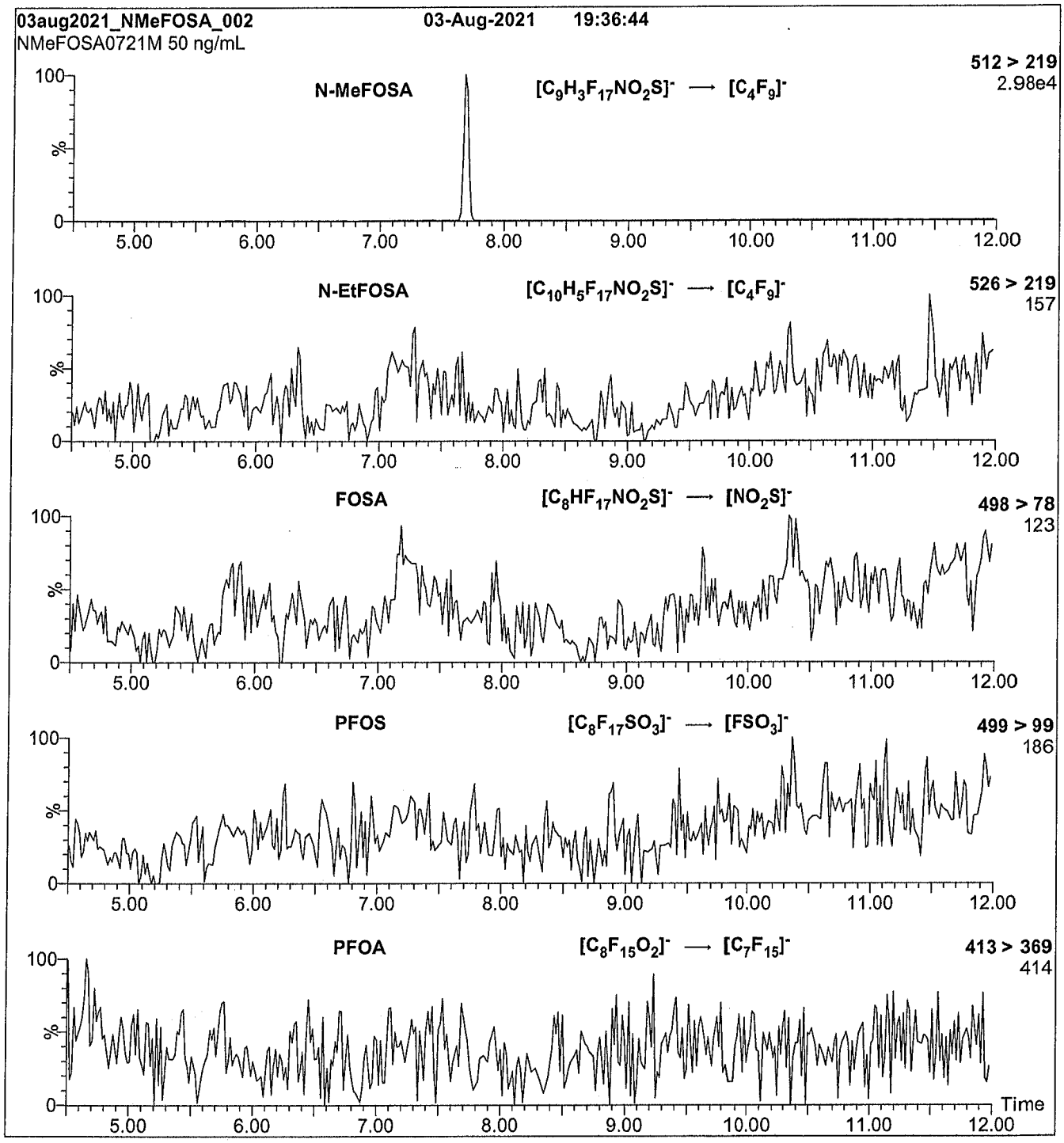
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 1.00
Cone Voltage (V) = 44.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (N-MeFOSA-M)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.41e-3
Collision Energy (eV) = 24

Analytical Standard Record

21L0008

Description:	PFAS - SAS N-MeFOSA 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 16:18 by HGH

Analyte	Parent	CAS Number	Concentration	Units
N-MEFOSA		31506-32-8	50	ug/mL

WELLINGTON LABORATORIES

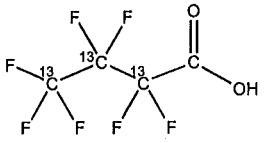
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

LOT NUMBER: M3PFBA0721

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CHF_7O_2$	**MOLECULAR WEIGHT:**	217.02
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99%^{13}C (2,3,4-$^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	08/19/2021		
EXPIRY DATE: (mm/dd/yyyy)	08/19/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.2% of perfluoro-n-($^{13}C_3$)propanoic acid and also contains ~1.0% of perfluoro-n-(1,2,3,4-$^{13}C_4$)butanoic acid due to the naturally occurring isotopic abundance of ^{13}C in the unlabelled carbon atom.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/25/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

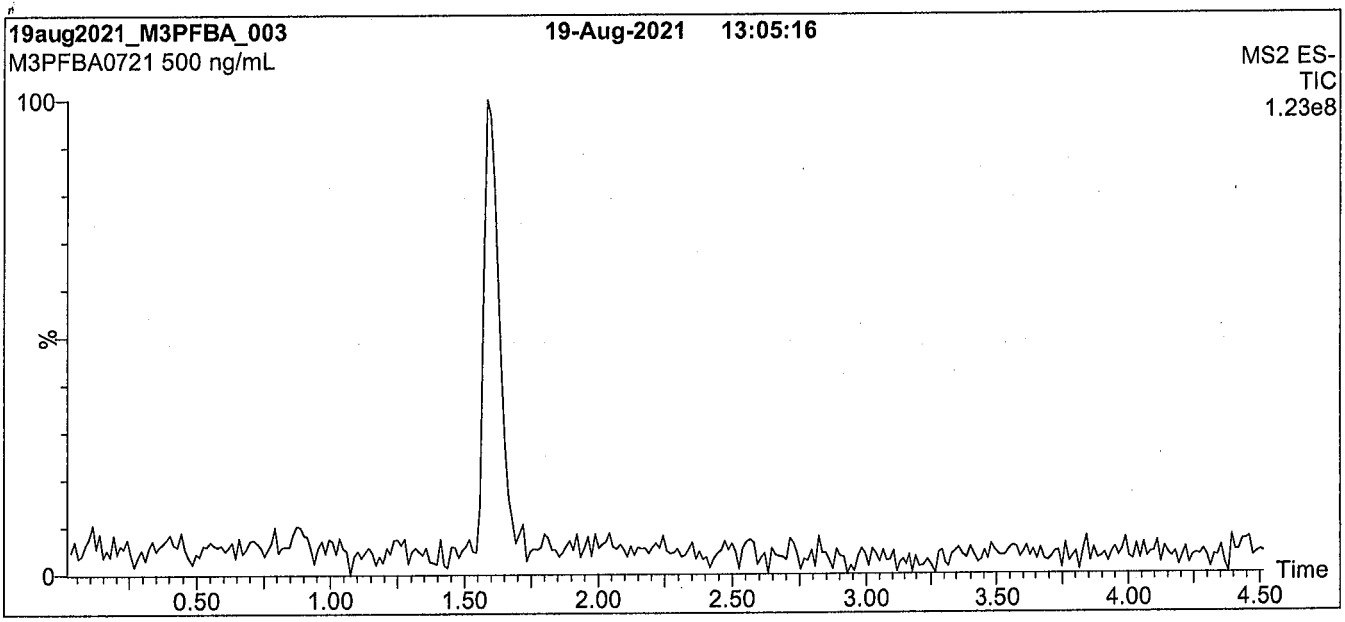
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

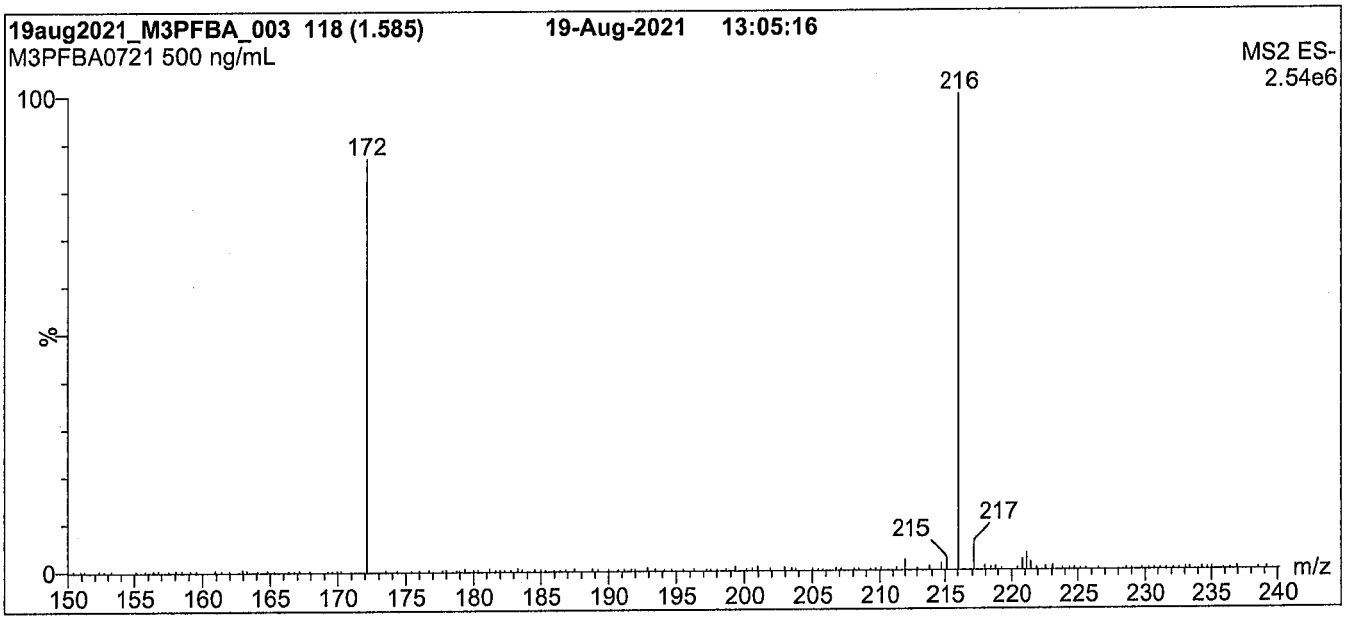
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **M3PFBA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% H_2O / 40% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 12 min

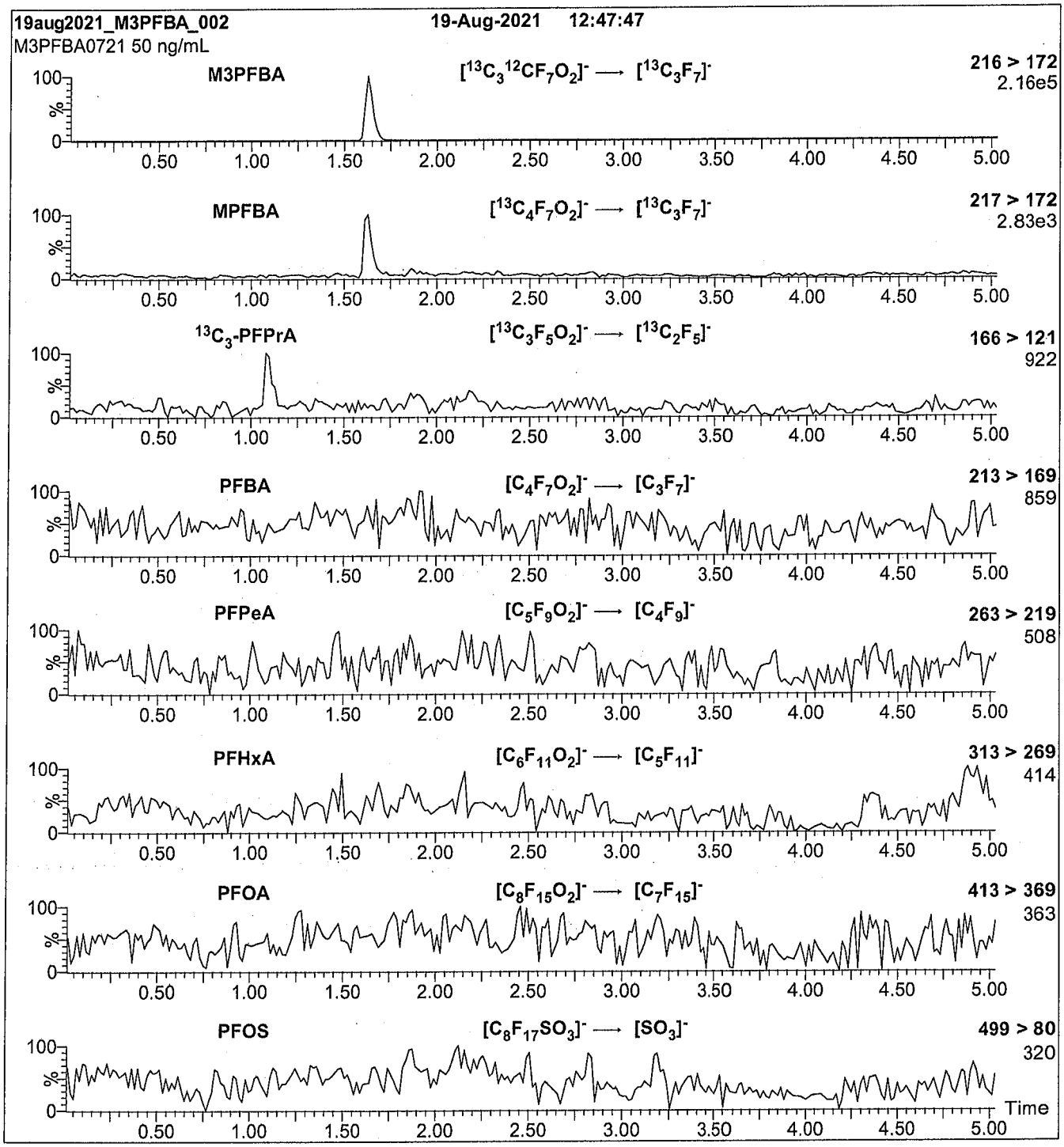
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **M3PFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (M3PFBA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.45e-3
Collision Energy (eV) = 8

Analytical Standard Record

22A0116

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

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

WELLINGTON LABORATORIES

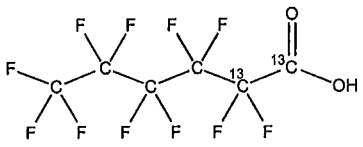
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

LOT NUMBER: MPFHxA0921

STRUCTURE:

CAS #: 960315-47-3



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4HF_{11}O_2$	**MOLECULAR WEIGHT:**	316.04
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	10/04/2021		
EXPIRY DATE: (mm/dd/yyyy)	10/04/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/22/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

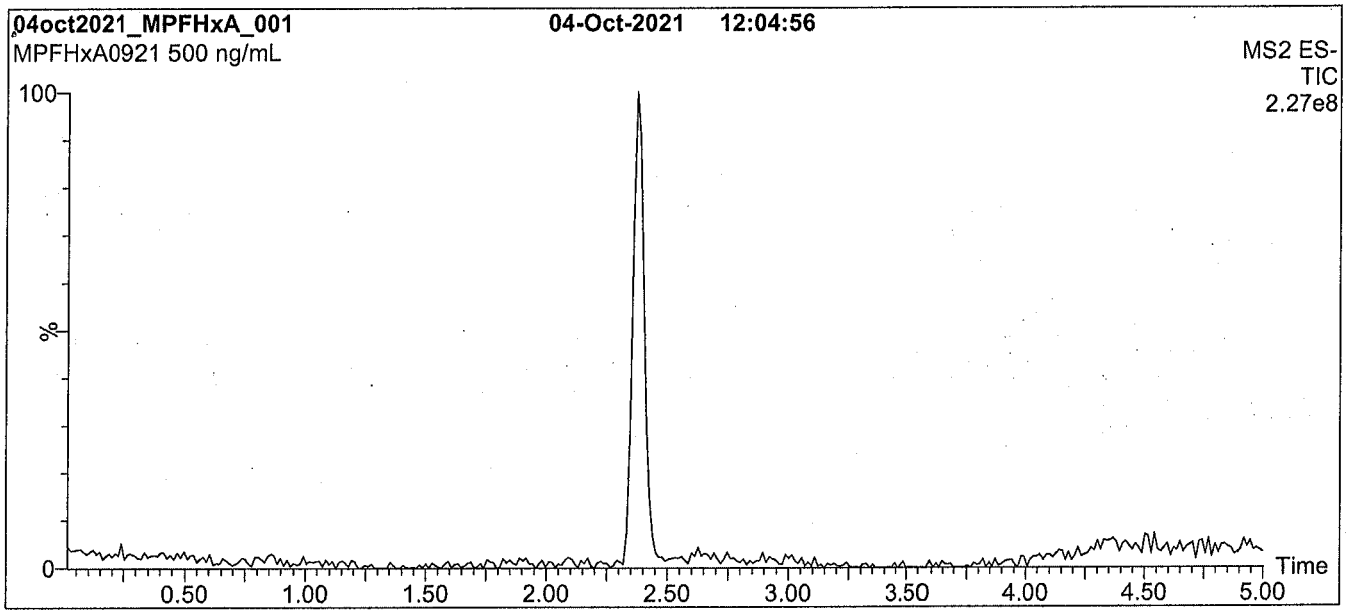
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

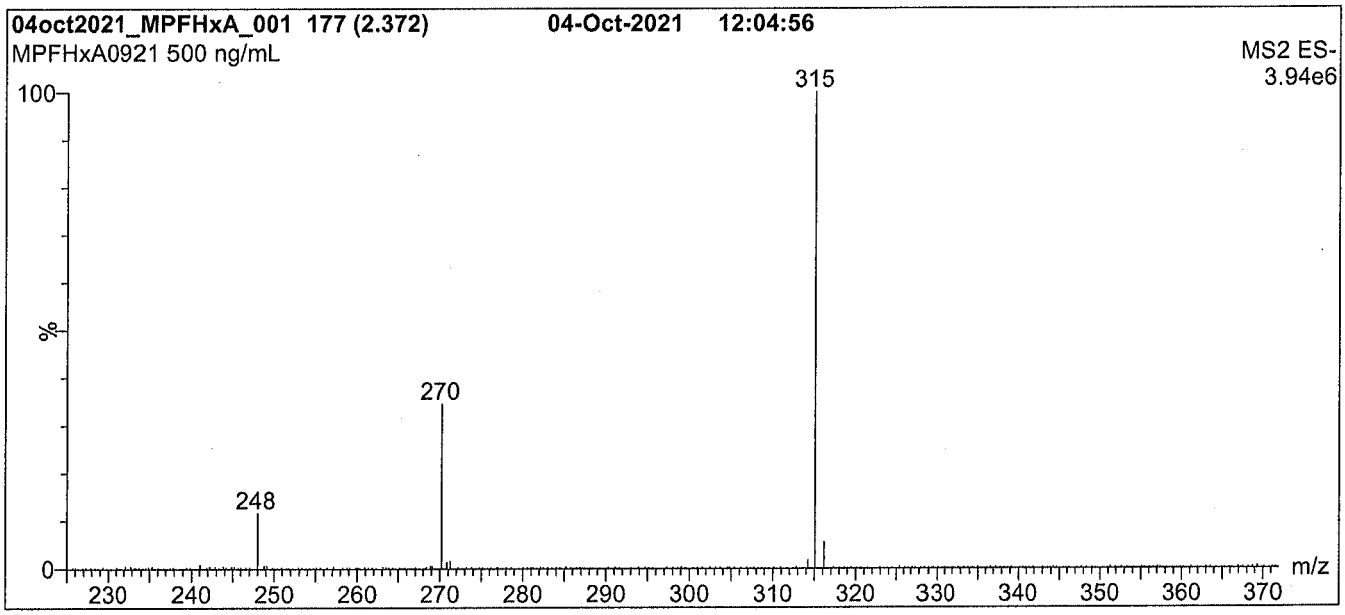
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFHxA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 1 min.
Time: 12 min

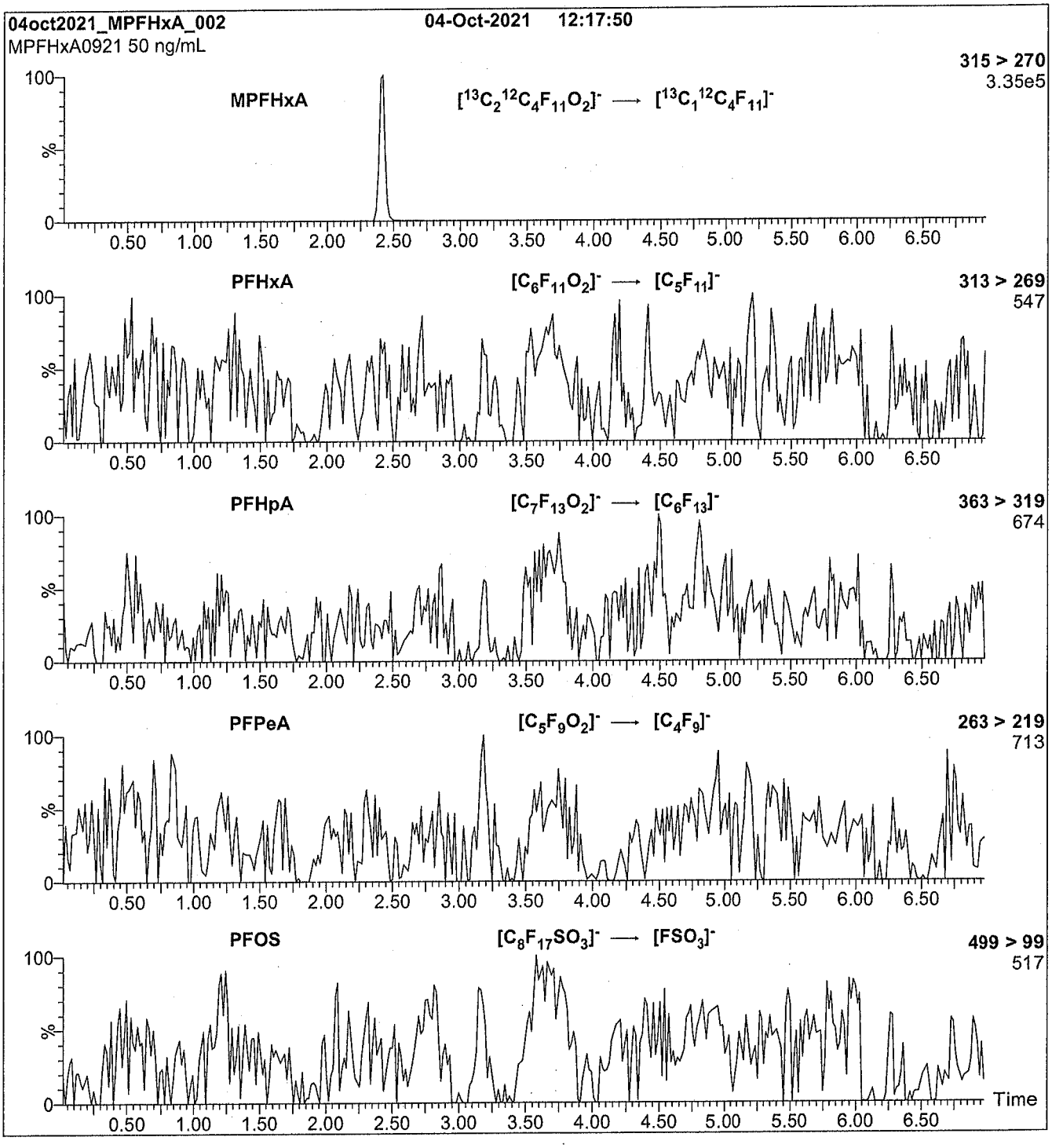
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFHxA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 8

Analytical Standard Record

22A0117

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

Analyte	Parent	CAS Number	Concentration	Units
13C2-PFHXA		13C2-PFHxA	50	ug/mL

Analytical Standard Record

22A0117

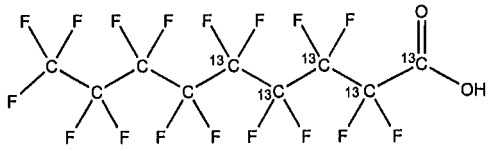
Description:	PFAS - IIS MPFHxA 50ug/mL	Expires:	10/04/2026
Standard Type:	Analyte Spike	Prepared:	10/04/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C2-PFHXA		13C2-PFHxA	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFNA	**LOT NUMBER:**	MPFNA1021
COMPOUND:	Perfluoro-n-(1,2,3,4,5-$^{13}C_5$)nonanoic acid		
STRUCTURE:		**CAS #:**	960315-49-5



MOLECULAR FORMULA:	$^{13}C_5{}^{12}C_4HF_{17}O_2$	**MOLECULAR WEIGHT:**	469.04
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4,5-$^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	10/29/2021		
EXPIRY DATE: (mm/dd/yyyy)	10/29/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/01/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

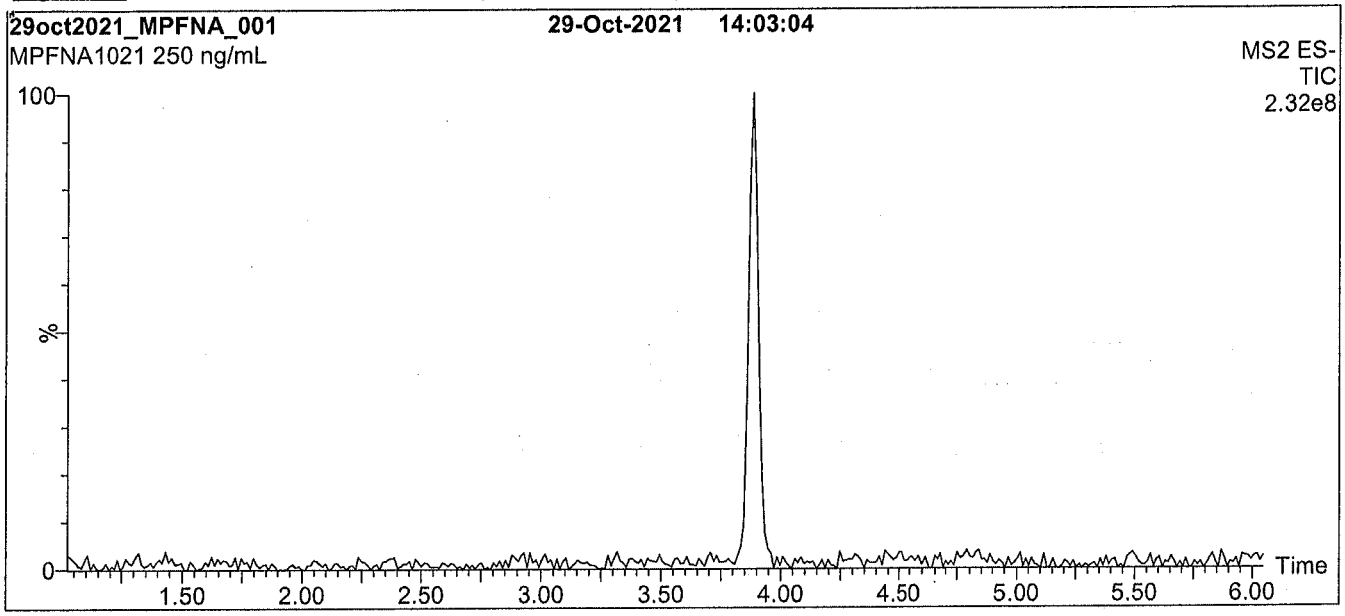
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

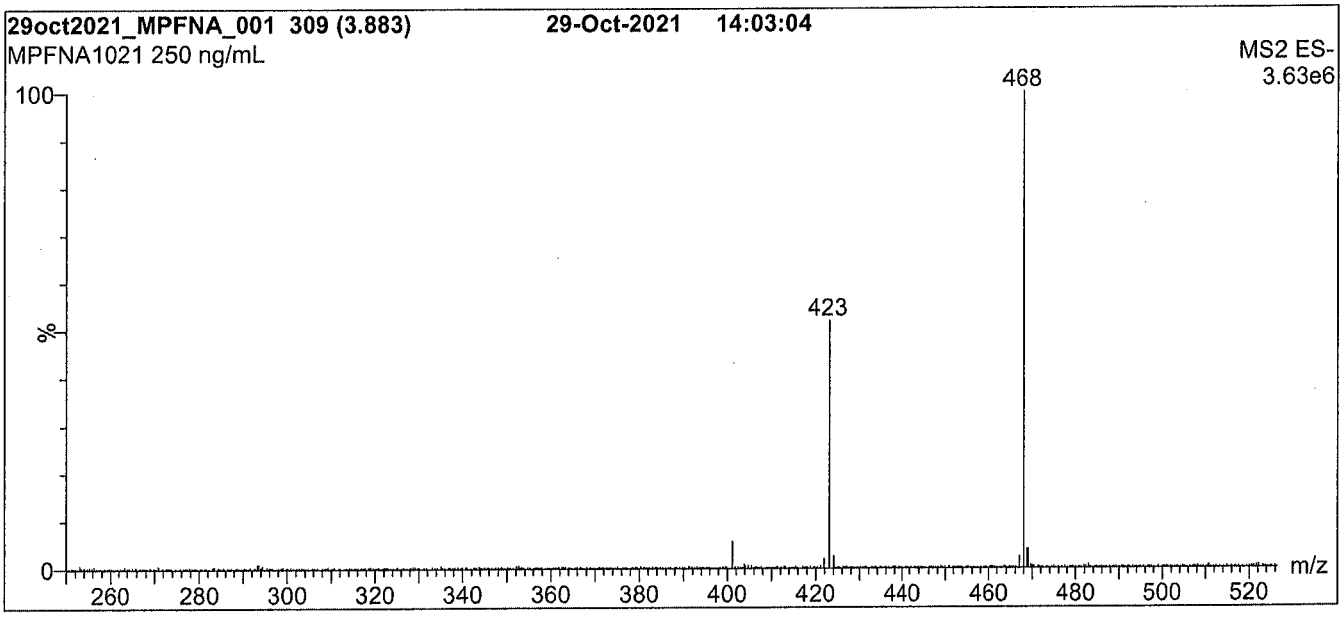
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFNA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

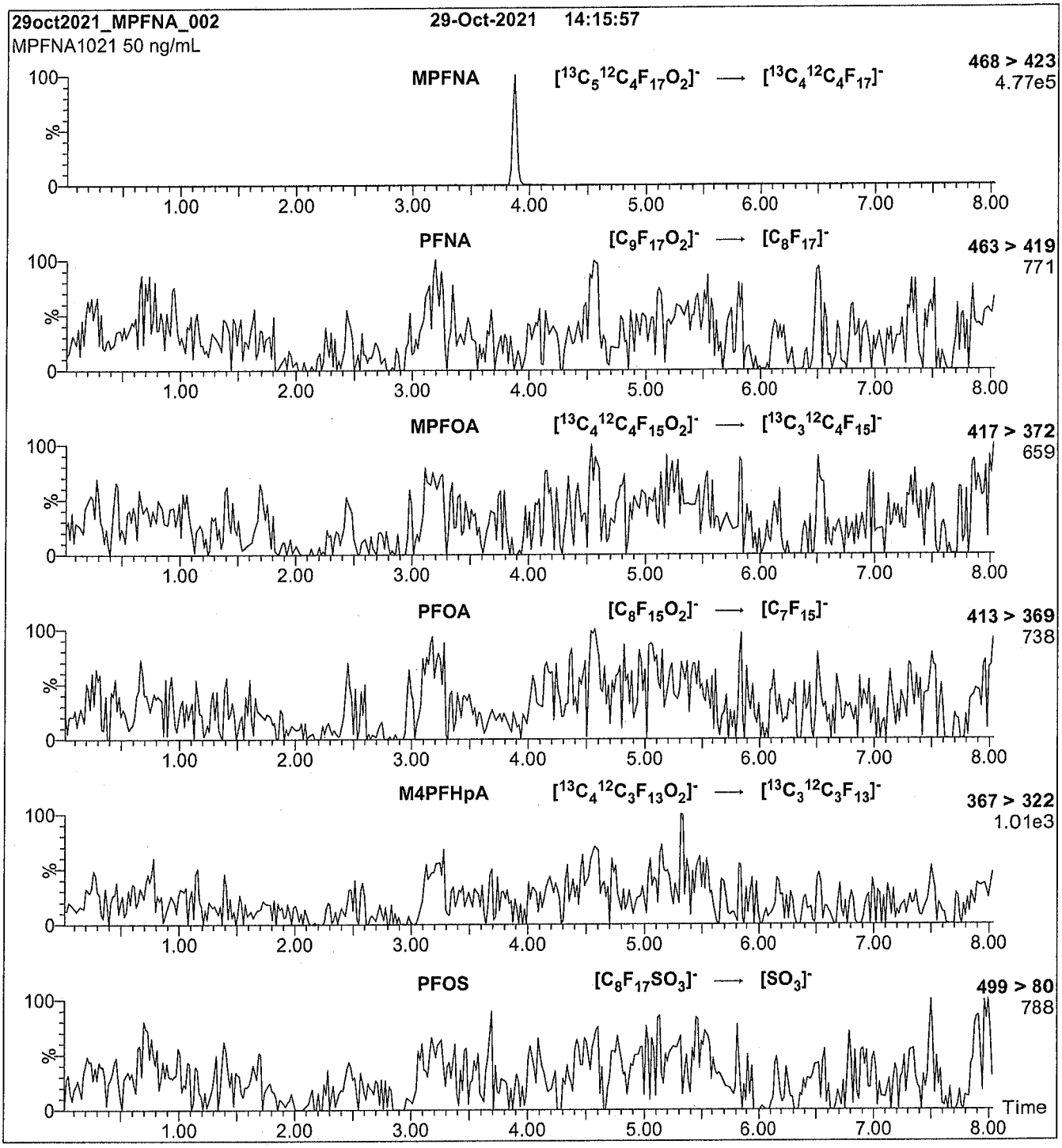
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFNA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.16e-3
Collision Energy (eV) = 10

Analytical Standard Record

22A0118

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

Analyte	Parent	CAS Number	Concentration	Units
13C5-PFNA		13C5-PFNA	50	ug/mL

Analytical Standard Record

22A0118

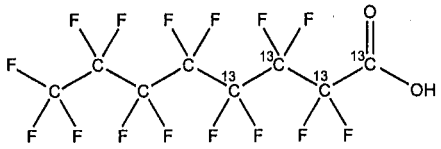
Description:	PFAS - IIS MPFNA 50ug/mL	Expires:	10/29/2026
Standard Type:	Analyte Spike	Prepared:	10/29/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C5-PFNA		13C5-PFNA	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFOA	**LOT NUMBER:**	MPFOA1121
COMPOUND:	Perfluoro-n-(1,2,3,4-$^{13}C_4$)octanoic acid		
STRUCTURE:		**CAS #:**	960315-48-4



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4HF_{15}O_2$	**MOLECULAR WEIGHT:**	418.04
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	12/07/2021		
EXPIRY DATE: (mm/dd/yyyy)	12/07/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/20/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

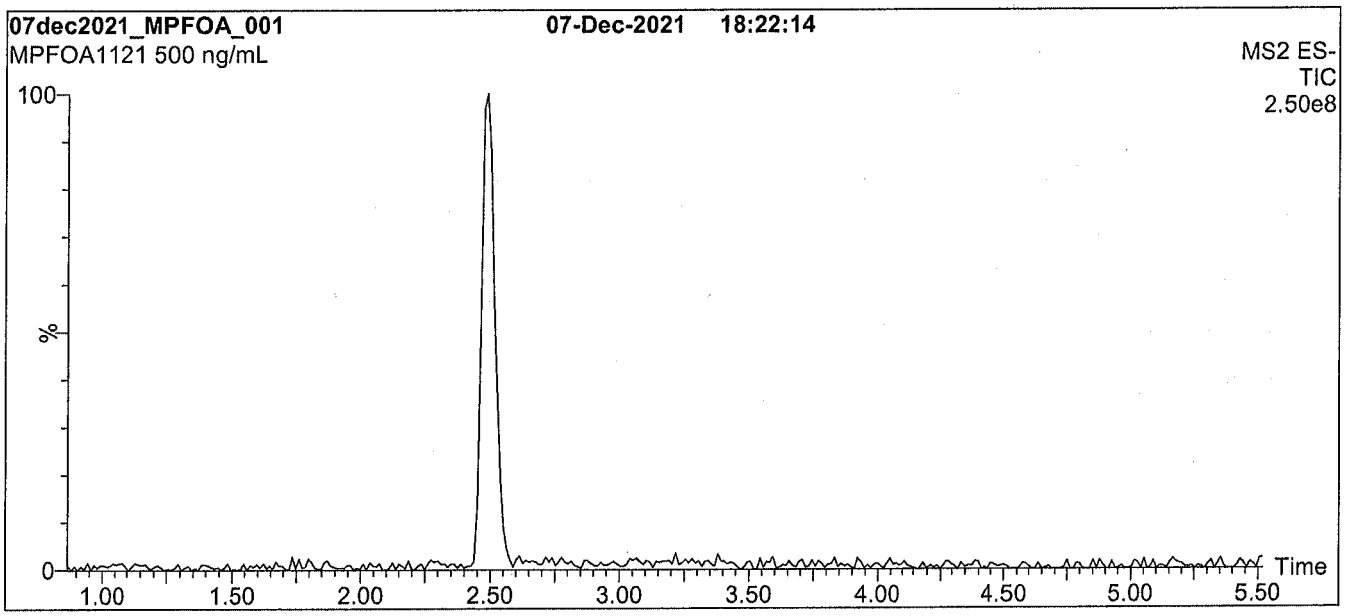
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

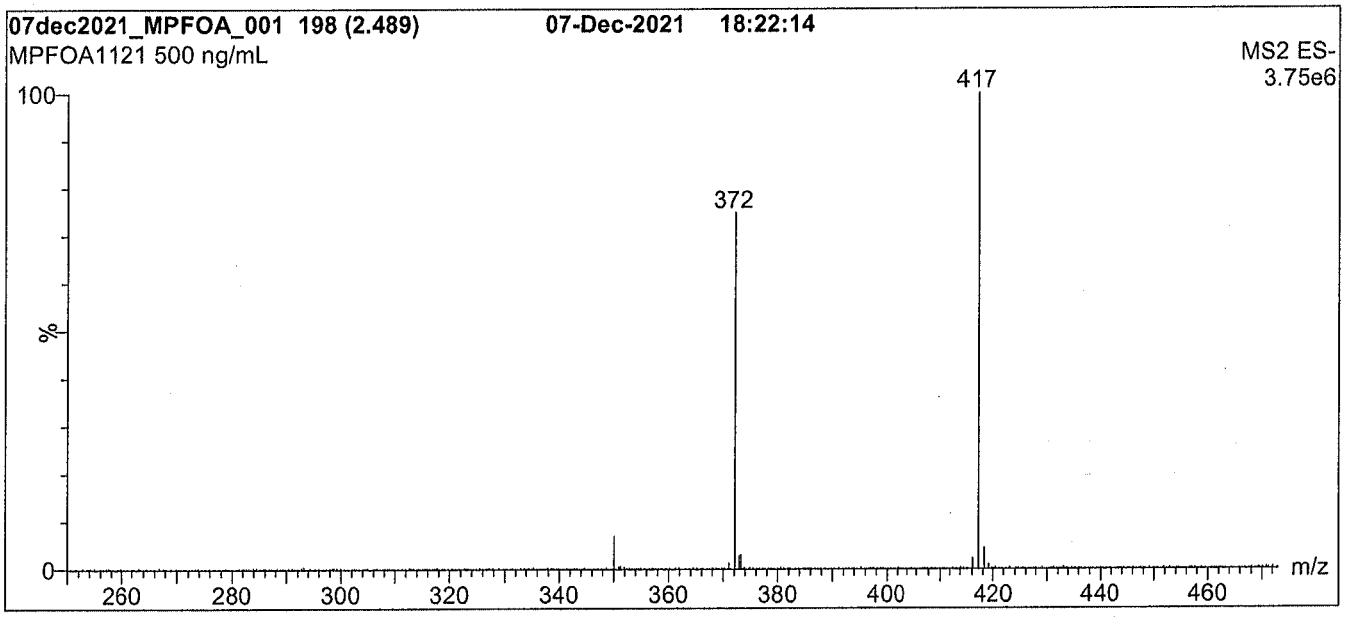
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFOA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

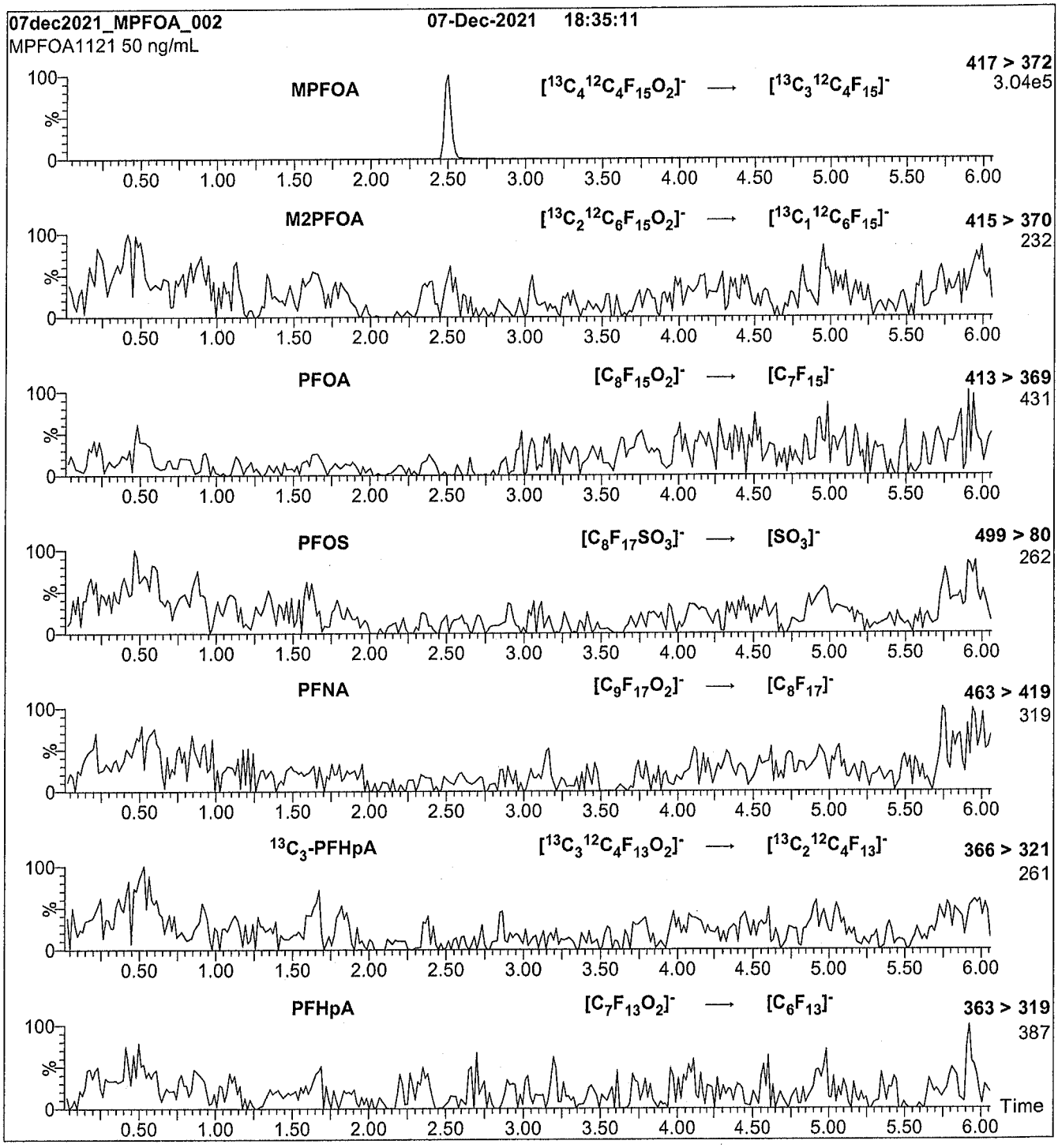
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFOA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 8

Analytical Standard Record

22A0119

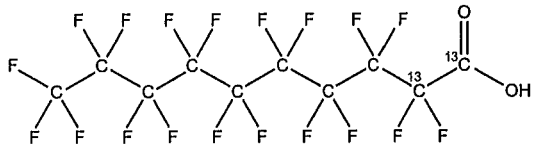
Description:	PFAS - IIS MPFOA 50ug/mL	Expires:	12/07/2026
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C4-PFOA		13C4-PFOA	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA1221
COMPOUND:	Perfluoro-n-(1,2-$^{13}C_2$)decanoic acid		
STRUCTURE:		**CAS #:**	960315-50-8



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8HF_{19}O_2$	**MOLECULAR WEIGHT:**	516.07
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	12/08/2021		
EXPIRY DATE: (mm/dd/yyyy)	12/08/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/13/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

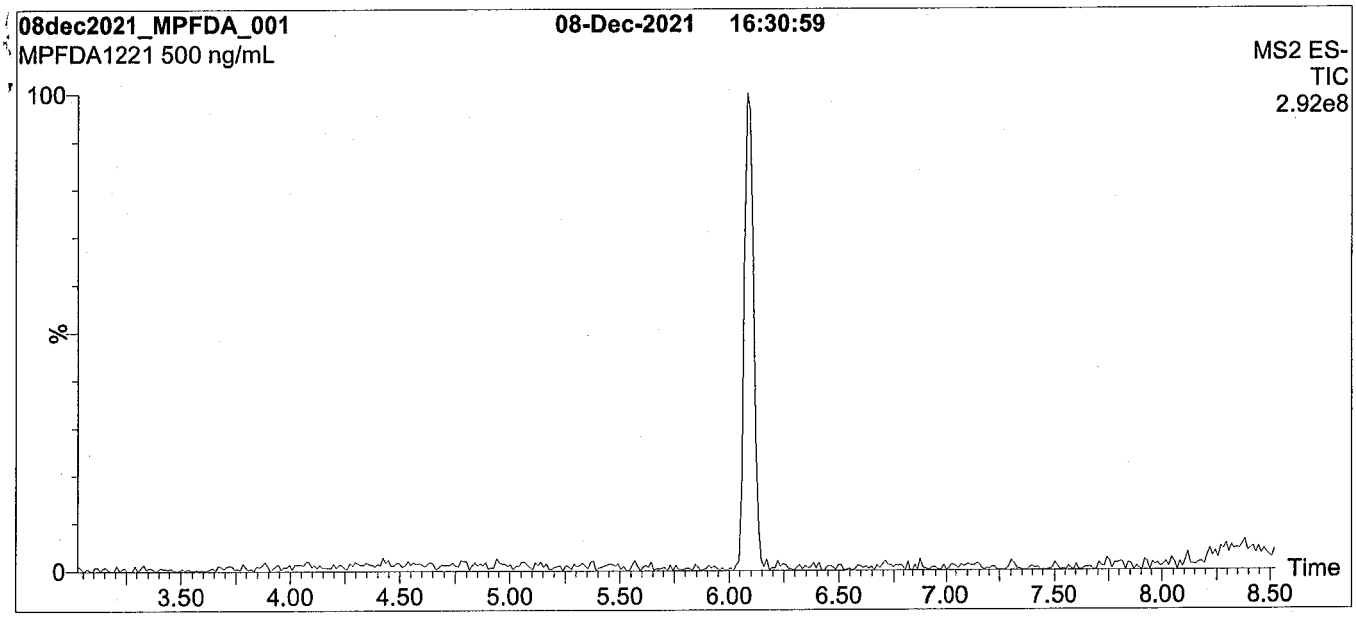
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

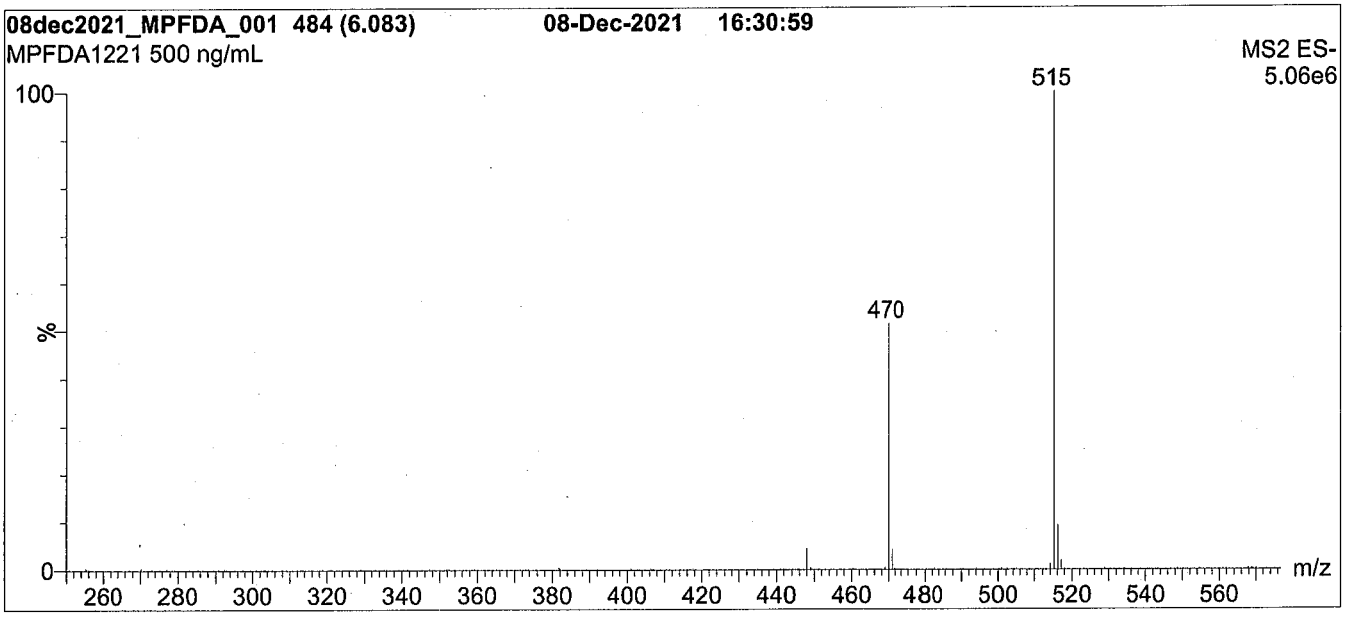
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFDA; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 9 min and hold for
1 min before returning to initial conditions in 0.75 min.
Time: 12 min

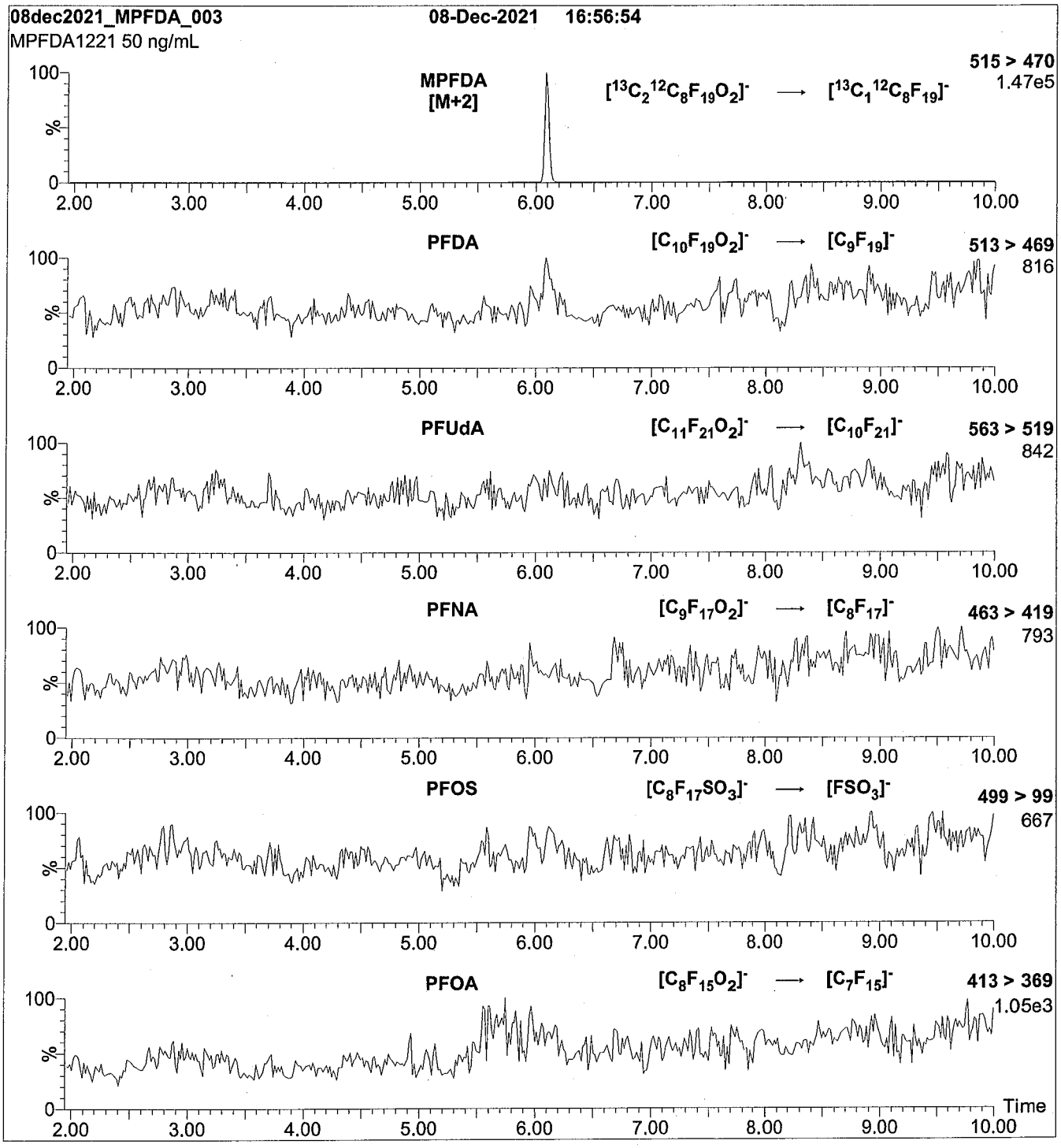
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFDA)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 10

Analytical Standard Record

22A0120

Description:	PFAS - IIS MPFDA 50ug/mL	Expires:	12/08/2026
Standard Type:	Analyte Spike	Prepared:	12/08/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C2-PFDA		13C2-PFDA	50	ug/mL

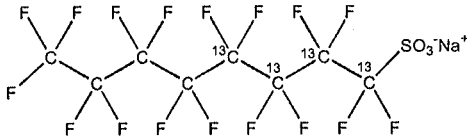
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS0821

COMPOUND: Sodium perfluoro-1-(1,2,3,4-$^{13}C_4$)octanesulfonate

STRUCTURE: **CAS #:** 960315-53-1



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.9 ± 2.4 µg/mL (MPFOS acid) 47.8 ± 2.4 µg/mL (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4-$^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	08/18/2021		
EXPIRY DATE: (mm/dd/yyyy)	08/18/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-($^{13}C_3$)heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/19/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

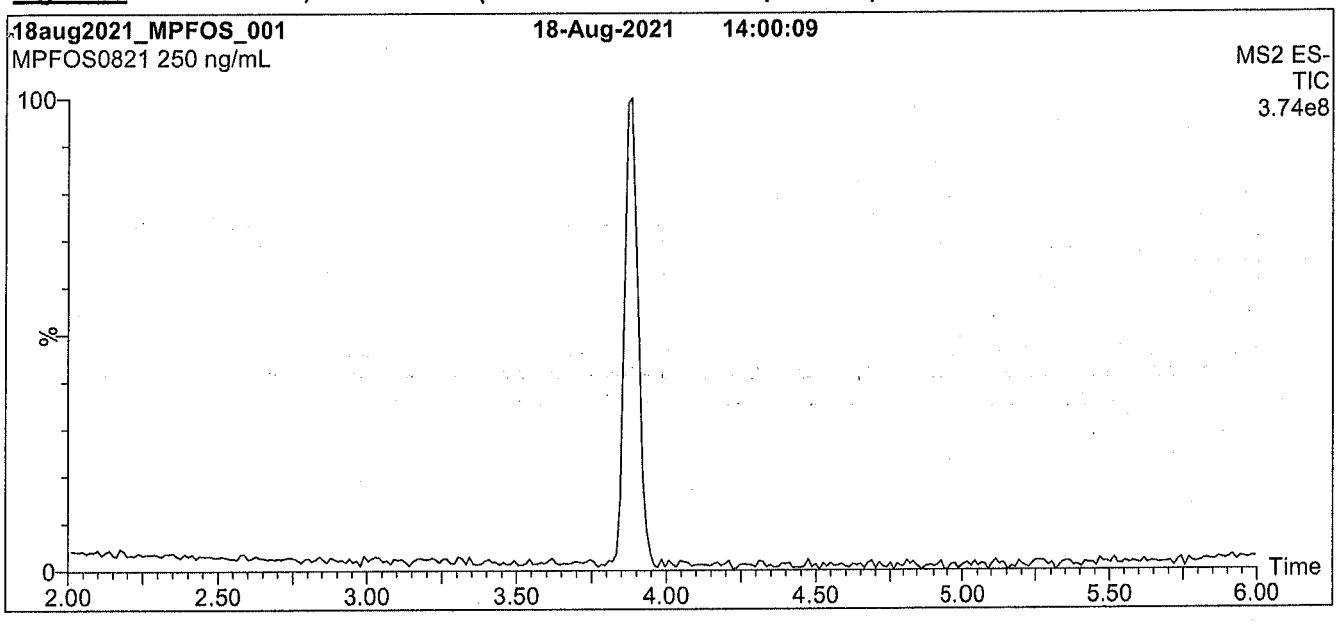
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

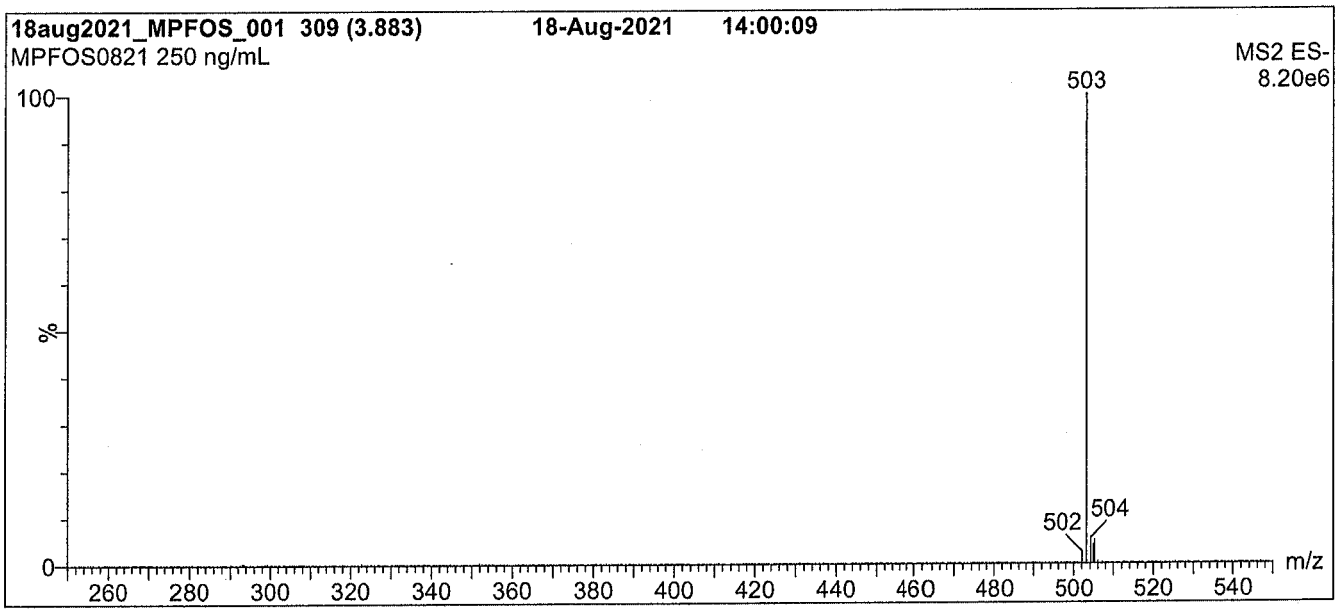
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFOS; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

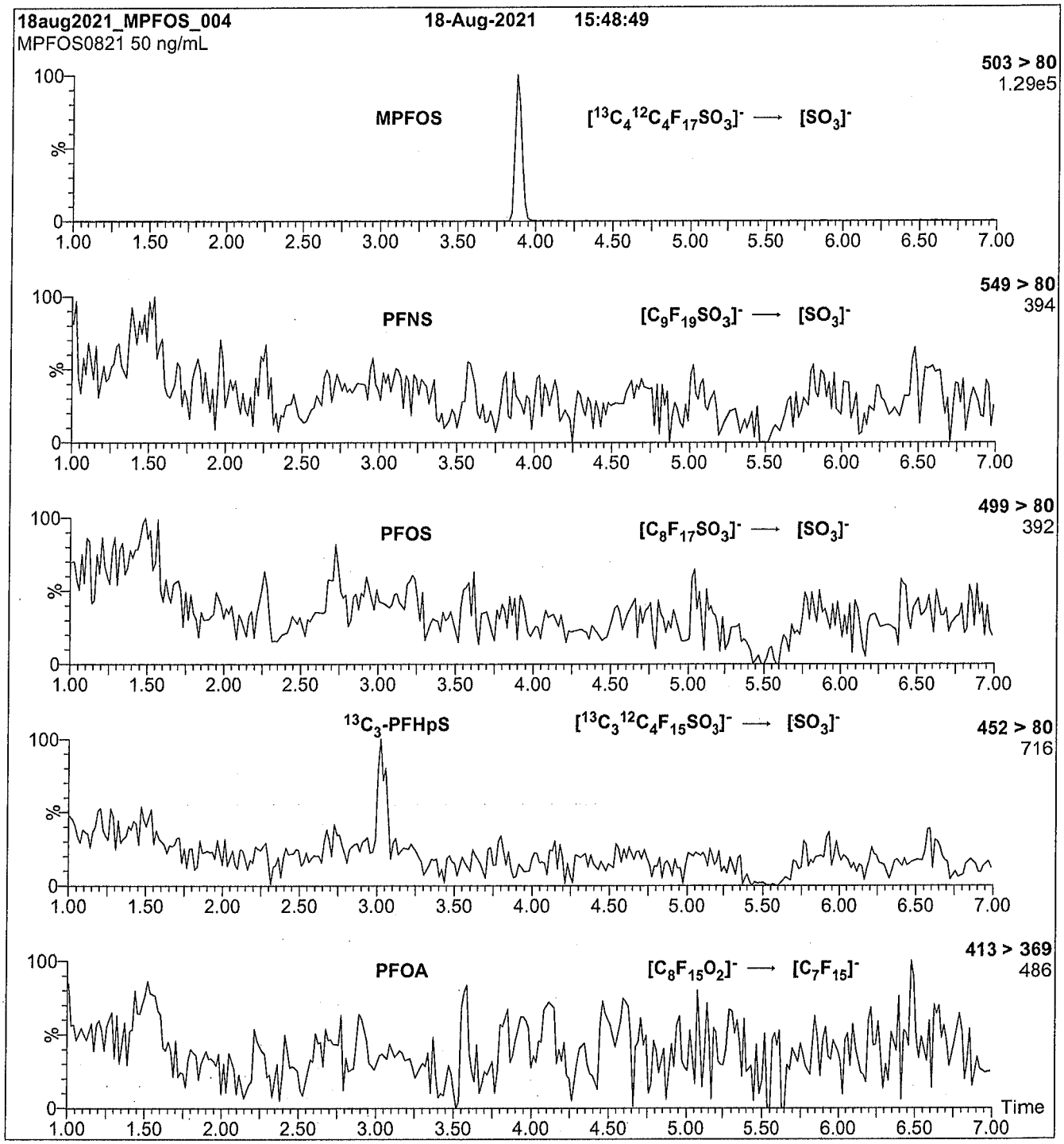
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFOS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFOS)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 42

Analytical Standard Record

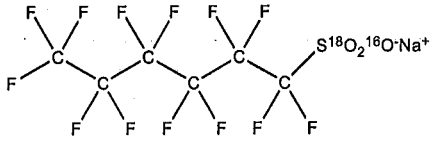
22A0121

Description:	PFAS - IIS MPFOS 50ug/mL	Expires:	08/18/2026
Standard Type:	Analyte Spike	Prepared:	08/18/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH

Analyte	Parent	CAS Number	Concentration	Units
13C4-PFOS		13C4-PFOS	50	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFHxS	**LOT NUMBER:**	MPFHxS1021
COMPOUND:	Sodium perfluoro-1-hexane($^{18}O_2$)sulfonate		
STRUCTURE:		**CAS #:**	1585941-14-5
MOLECULAR FORMULA:	$C_6F_{13}S^{18}O_2{}^{16}ONa$	**MOLECULAR WEIGHT:**	426.10
CONCENTRATION:	50.0 ± 2.5 µg/mL (Na salt) 47.4 ± 2.4 µg/mL (MPFHxS acid) 47.3 ± 2.4 µg/mL (MPFHxS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	>94% ($^{18}O_2$)
LAST TESTED: (mm/dd/yyyy)	10/29/2021		
EXPIRY DATE: (mm/dd/yyyy)	10/29/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The response factor for MPFHxS ($C_6F_{13}S^{18}O_2{}^{16}O^-$) has been observed to be up to 10% lower than for PFHxS ($C_6F_{13}S^{16}O_3^-$) when both compounds are injected together. This difference may vary between instruments.
- Contains ~0.6% of sodium perfluoro-1-octane($^{18}O_2$)sulfonate ($^{18}O_2$-PFOS) and ~0.3% of sodium perfluoro-1-heptane($^{18}O_2$)sulfonate ($^{18}O_2$-PFHpS).
- Due to the isotopic purity of the starting material ($^{18}O_2$ >94%), MPFHxS contains ~0.3% of PFHxS. This value agrees with the theoretical percent relative abundance that is expected based on the stated isotopic purity.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

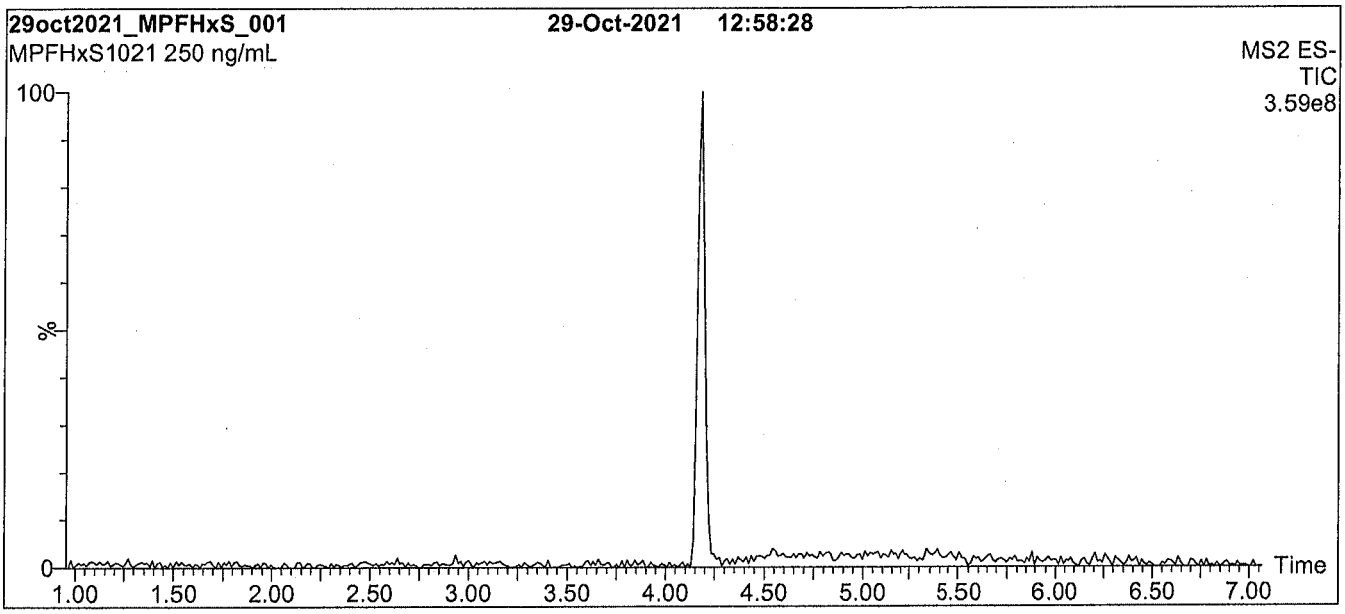
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

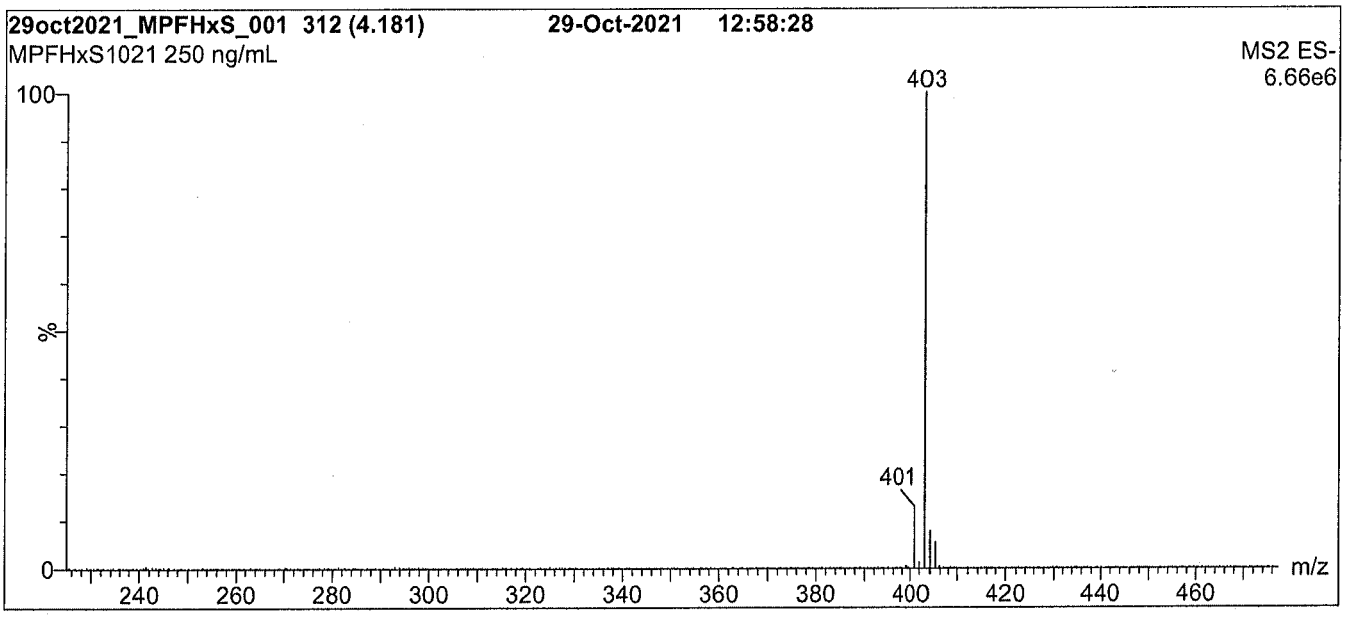
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **MPFHxS; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 9 min and hold for
1 min before returning to initial conditions in 0.75 min.
Time: 12 min

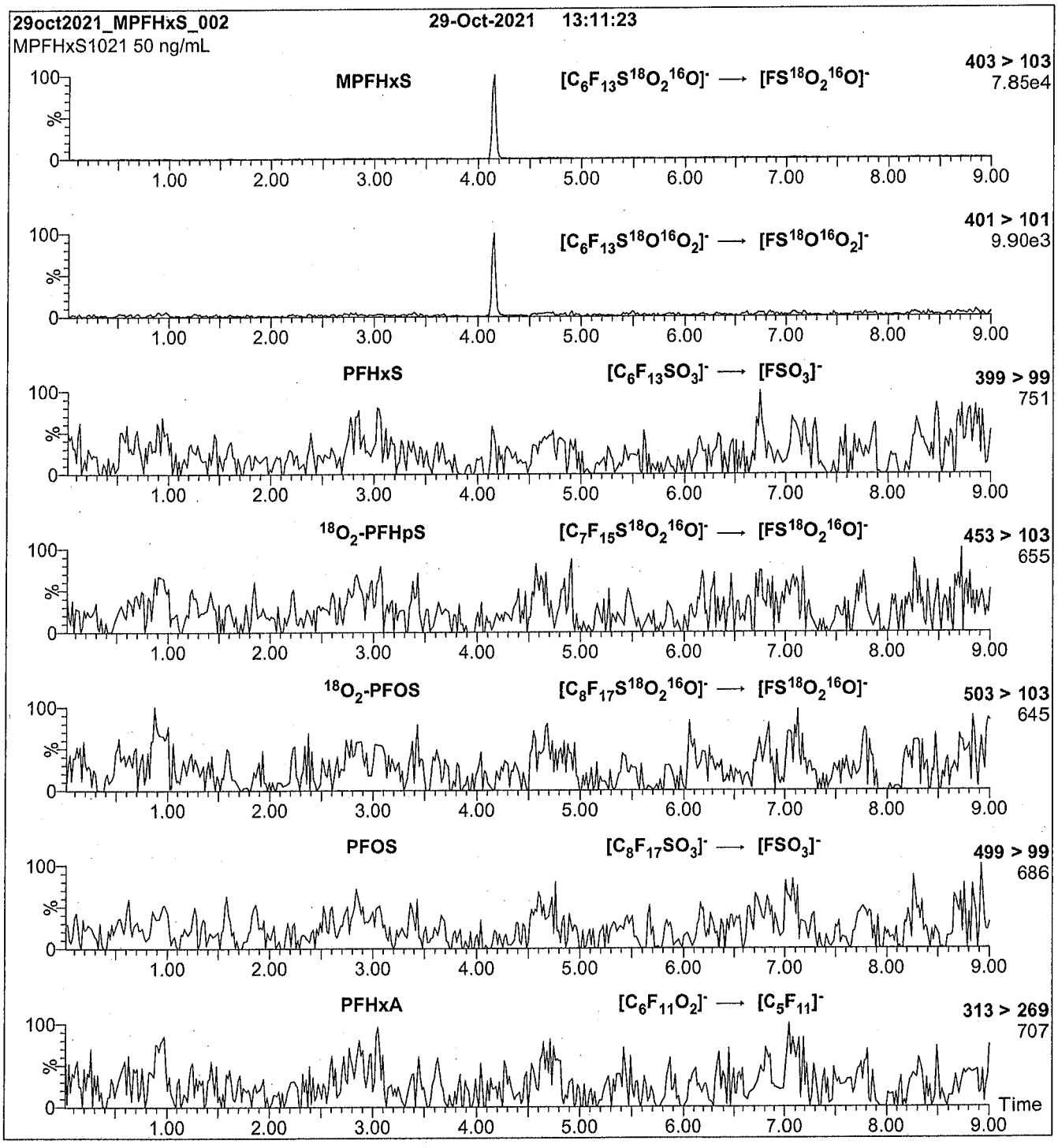
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 10.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **MPFHxS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (MPFHxS)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.16e-3
Collision Energy (eV) = 32

Analytical Standard Record

22A0122

Description:	PFAS - IIS MPFHxS 50ug/mL	Expires:	10/29/2026
Standard Type:	Analyte Spike	Prepared:	10/29/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH

Analyte	Parent	CAS Number	Concentration	Units
18O2-PFHXS		18O2-PFHXS	50	ug/mL

Analytical Standard Record

22A0122

Description:	PFAS - IIS MPFHxS 50ug/mL	Expires:	10/29/2026
Standard Type:	Analyte Spike	Prepared:	10/29/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH

Analyte	Parent	CAS Number	Concentration	Units
18O2-PFHXS		18O2-PFHXS	50	ug/mL

Analytical Standard Record

22A0234

Description:	PFAS IIS 7C 5ug/mL	Expires:	01/20/2023
Standard Type:	Internal Standard	Prepared:	01/20/2022
Solvent:	MeOH/61252	Prepared By:	Dipti Gokal
Final Volume (mls):	12	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH
Comments:	mpfna had more left over than others.		

Analyte	Parent	CAS Number	Concentration	Units
13C3-PFBA	22A0116	13C3-PFBA	5	ug/mL
13C2-PFHXA	22A0117	13C2-PFHxA	5	ug/mL
13C5-PFNA	22A0118	13C5-PFNA	5	ug/mL
13C4-PFOA	22A0119	13C4-PFOA	5	ug/mL
13C2-PFDA	22A0120	13C2-PFDA	5	ug/mL
13C4-PFOS	22A0121	13C4-PFOS	5	ug/mL
18O2-PFHXS	22A0122	18O2-PFHXS	5	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0116	PFAS - IIS M3PFBA 50ug/mL	08/19/2021	Wellington Laboratories	M3PFBA0721	08/19/2026	01/20/2022 15:48	by HGH	1.2
22A0117	PFAS - IIS MPFHxA 50ug/mL	10/04/2021	Wellington Laboratories	MPFHxA0921	10/04/2026	01/20/2022 15:48	by HGH	1.2
22A0118	PFAS - IIS MPFNA 50ug/mL	10/29/2021	Wellington Laboratories	MPFNA1021	10/29/2026	01/20/2022 15:48	by HGH	1.2
22A0119	PFAS - IIS MPFOA 50ug/mL	12/07/2021	Wellington Laboratories	MPFOA1121	12/07/2026	01/20/2022 15:48	by HGH	1.2
22A0120	PFAS - IIS MPFDA 50ug/mL	12/08/2021	Wellington Laboratories	MPFDA1221	12/08/2026	01/20/2022 15:49	by HGH	1.2
22A0121	PFAS - IIS MPFOS 50ug/mL	08/18/2021	Wellington Laboratories	MPFOS0821	08/18/2026	01/20/2022 15:49	by HGH	1.2
22A0122	PFAS - IIS MPFHxS 50ug/mL	10/29/2021	Wellington Laboratories	MPFHxS1021	10/29/2026	01/20/2022 15:49	by HGH	1.2

Analytical Standard Record

22A0234

Description:	PFAS IIS 7C 5ug/mL	Expires:	01/20/2023
Standard Type:	Internal Standard	Prepared:	01/20/2022
Solvent:	MeOH/61252	Prepared By:	Dipti Gokal
Final Volume (mls):	12	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH
Comments:	mpfna had more left over than others.		

Analyte	Parent	CAS Number	Concentration	Units
13C3-PFBA	22A0116	13C3-PFBA	5	ug/mL
13C2-PFHXA	22A0117	13C2-PFHxA	5	ug/mL
13C5-PFNA	22A0118	13C5-PFNA	5	ug/mL
13C4-PFOA	22A0119	13C4-PFOA	5	ug/mL
13C2-PFDA	22A0120	13C2-PFDA	5	ug/mL
13C4-PFOS	22A0121	13C4-PFOS	5	ug/mL
18O2-PFHXS	22A0122	18O2-PFHXS	5	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0116	PFAS - IIS M3PFBA 50ug/mL	08/19/2021	Wellington Laboratories	M3PFBA0721	08/19/2026	01/20/2022 15:48	by HGH	1.2
22A0117	PFAS - IIS MPFHxA 50ug/mL	10/04/2021	Wellington Laboratories	MPFHxA0921	10/04/2026	01/20/2022 15:48	by HGH	1.2
22A0118	PFAS - IIS MPFNA 50ug/mL	10/29/2021	Wellington Laboratories	MPFNA1021	10/29/2026	01/20/2022 15:48	by HGH	1.2
22A0119	PFAS - IIS MPFOA 50ug/mL	12/07/2021	Wellington Laboratories	MPFOA1121	12/07/2026	01/20/2022 15:48	by HGH	1.2
22A0120	PFAS - IIS MPFDA 50ug/mL	12/08/2021	Wellington Laboratories	MPFDA1221	12/08/2026	01/20/2022 15:49	by HGH	1.2
22A0121	PFAS - IIS MPFOS 50ug/mL	08/18/2021	Wellington Laboratories	MPFOS0821	08/18/2026	01/20/2022 15:49	by HGH	1.2
22A0122	PFAS - IIS MPFHxS 50ug/mL	10/29/2021	Wellington Laboratories	MPFHxS1021	10/29/2026	01/20/2022 15:49	by HGH	1.2

Analytical Standard Record

22A0234

Description:	PFAS IIS 7C 5ug/mL	Expires:	01/20/2023
Standard Type:	Internal Standard	Prepared:	01/20/2022
Solvent:	MeOH/61252	Prepared By:	Dipti Gokal
Final Volume (mls):	12	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:49 by HGH
Comments:	mpfna had more left over than others.		

Analyte	Parent	CAS Number	Concentration	Units
13C3-PFBA	22A0116	13C3-PFBA	5	ug/mL
13C2-PFHXA	22A0117	13C2-PFHxA	5	ug/mL
13C5-PFNA	22A0118	13C5-PFNA	5	ug/mL
13C4-PFOA	22A0119	13C4-PFOA	5	ug/mL
13C2-PFDA	22A0120	13C2-PFDA	5	ug/mL
13C4-PFOS	22A0121	13C4-PFOS	5	ug/mL
18O2-PFHXS	22A0122	18O2-PFHXS	5	ug/mL

Parent Standards used:

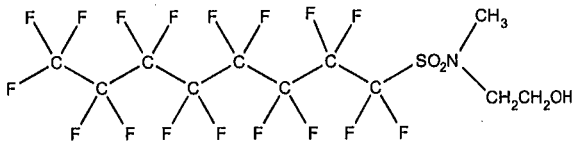
Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0116	PFAS - IIS M3PFBA 50ug/mL	08/19/2021	Wellington Laboratories	M3PFBA0721	08/19/2026	01/20/2022 15:48	by HGH	1.2
22A0117	PFAS - IIS MPFHxA 50ug/mL	10/04/2021	Wellington Laboratories	MPFHxA0921	10/04/2026	01/20/2022 15:48	by HGH	1.2
22A0118	PFAS - IIS MPFNA 50ug/mL	10/29/2021	Wellington Laboratories	MPFNA1021	10/29/2026	01/20/2022 15:48	by HGH	1.2
22A0119	PFAS - IIS MPFOA 50ug/mL	12/07/2021	Wellington Laboratories	MPFOA1121	12/07/2026	01/20/2022 15:48	by HGH	1.2
22A0120	PFAS - IIS MPFDA 50ug/mL	12/08/2021	Wellington Laboratories	MPFDA1221	12/08/2026	01/20/2022 15:49	by HGH	1.2
22A0121	PFAS - IIS MPFOS 50ug/mL	08/18/2021	Wellington Laboratories	MPFOS0821	08/18/2026	01/20/2022 15:49	by HGH	1.2
22A0122	PFAS - IIS MPFHxS 50ug/mL	10/29/2021	Wellington Laboratories	MPFHxS1021	10/29/2026	01/20/2022 15:49	by HGH	1.2

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M
LOT NUMBER: NMeFOSE0921M 22C0307
COMPOUND: 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE:
CAS #: 24448-09-7



MOLECULAR FORMULA:	$C_{11}H_8F_{17}NO_3S$	**MOLECULAR WEIGHT:**	557.22
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/22/2021 (HRGC/LRMS) 09/23/2021 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	09/23/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/28/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

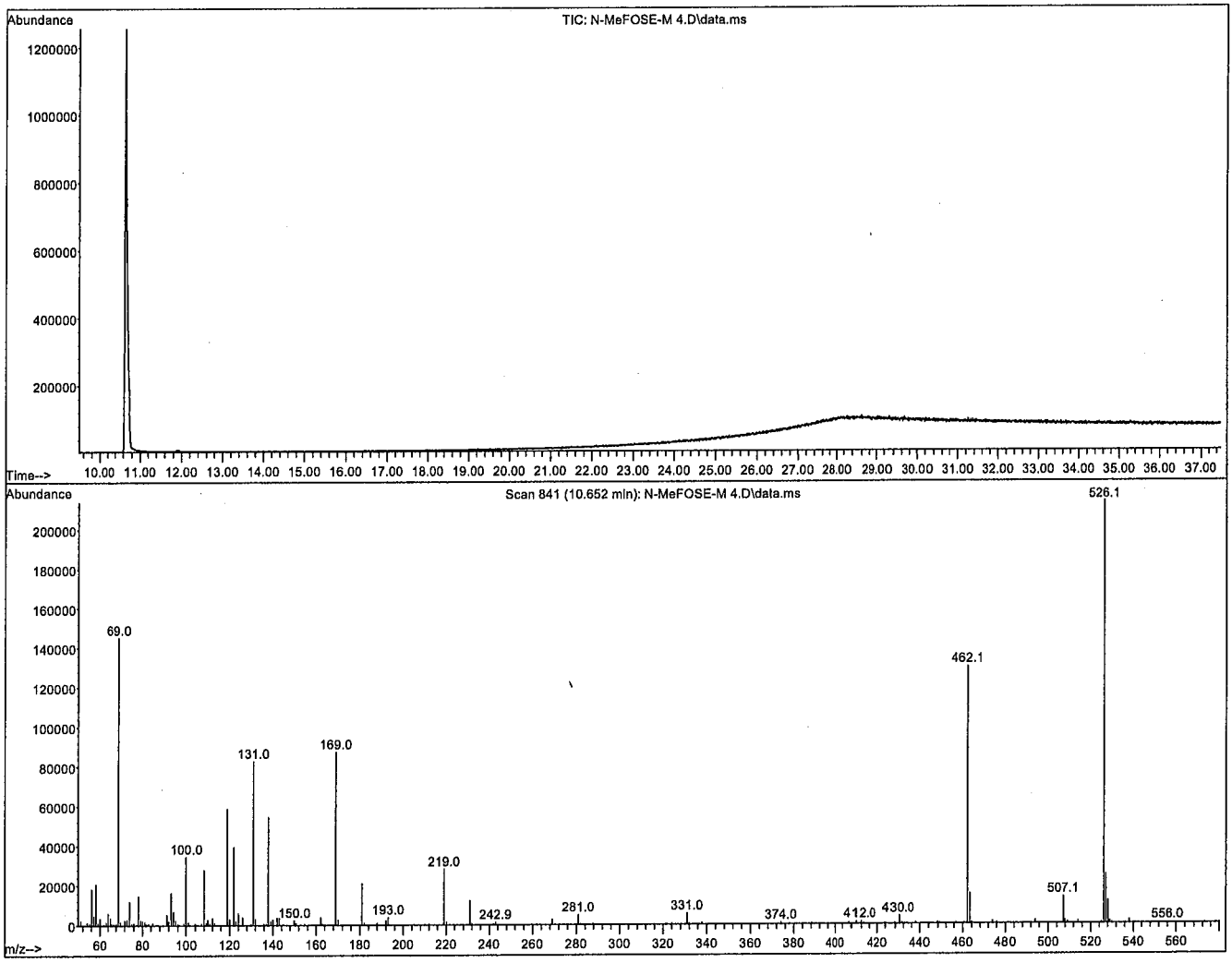
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **N-MeFOSE-M; HRGC/LRMS Data (Full Scan and Mass Spectrum)**



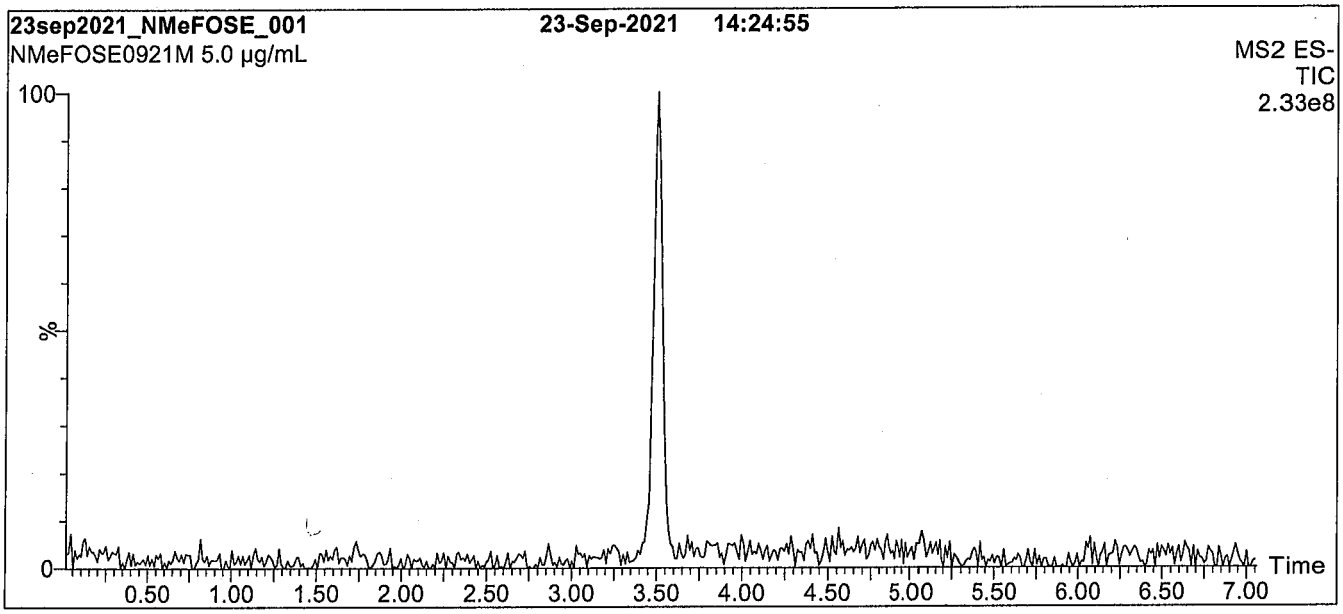
Conditions for Figure 1:

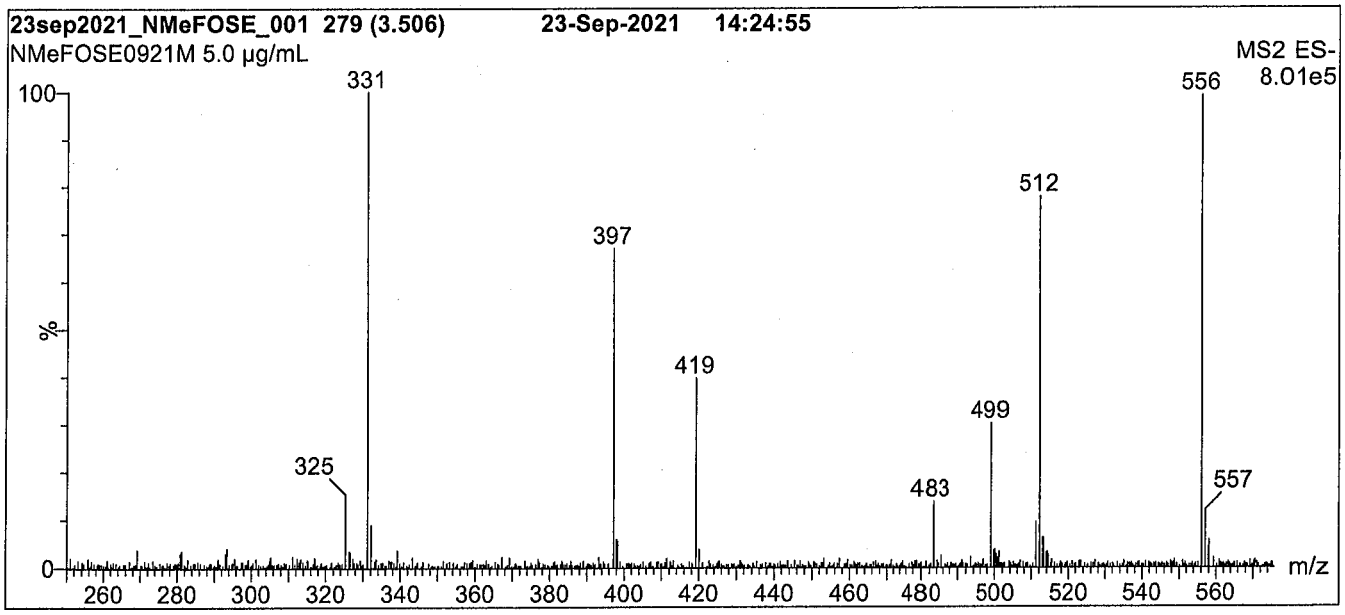
Agilent 7890A HRGC
Agilent 5975C MSD

Chromatographic Conditions:

Column:	30 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W
Flow:	Constant at 1 mL/min
Injector:	250°C (Splitless Injection)
Oven:	100°C (5 min)
	10°C/min to 310°C
	310°C (10 min)
Ionization:	EI+
Detector:	230°C
	Full Scan (50-1000 amu)

Figure 2: **N-MeFOSE-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 2:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% H_2O / 70% MeOH
Ramp to 90% organic over 8 min and hold for
1.5 min before returning to initial conditions in 1 min.
Time: 12 min

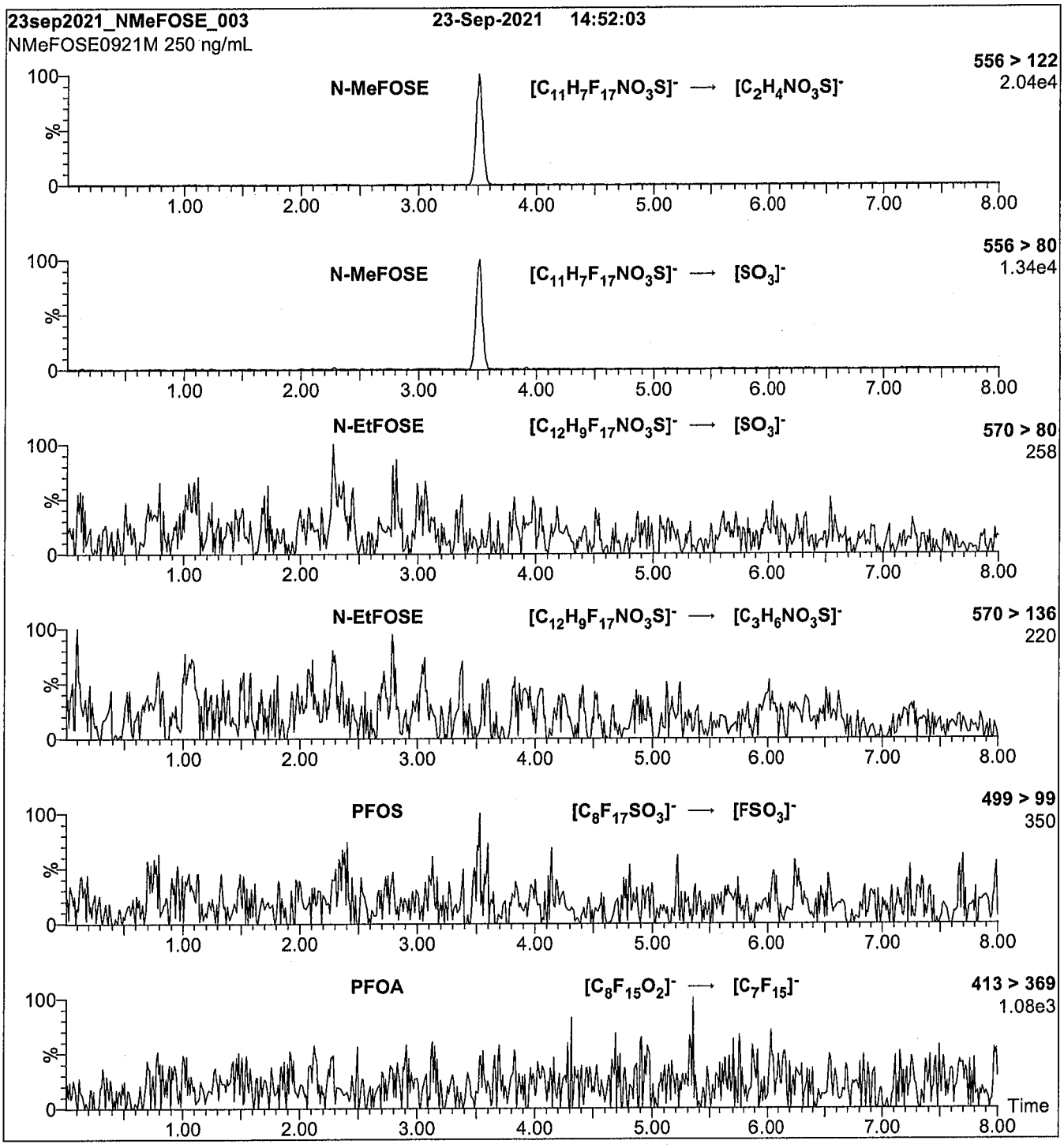
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Desolvation Temperature (°C) = 450
Desolvation Gas Flow (L/hr) = 1000

Figure 3: **N-MeFOSE-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (N-MeFOSE-M)

Mobile phase: Same as Figure 2

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.14e-3
Collision Energy (eV) = 36

Analytical Standard Record

22C0307

Description:	PFAS - SAS N-MeFOSE 50ug/mL	Expires:	09/23/2026
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: NMeFOSE0921M)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 15:59 by DAG

Analyte	Parent	CAS Number	Concentration	Units
NMeFOSE		24448-09-7	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

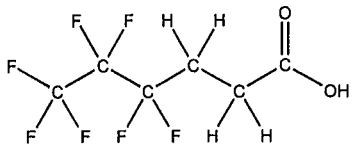
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0122
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:

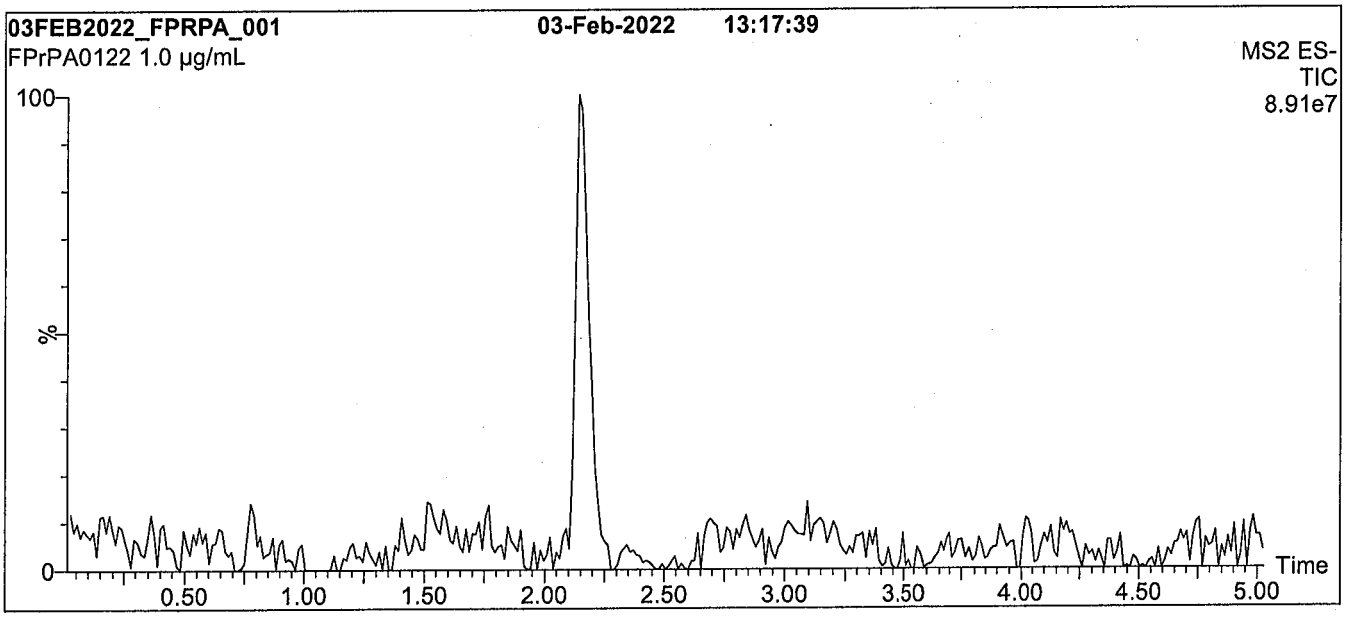
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

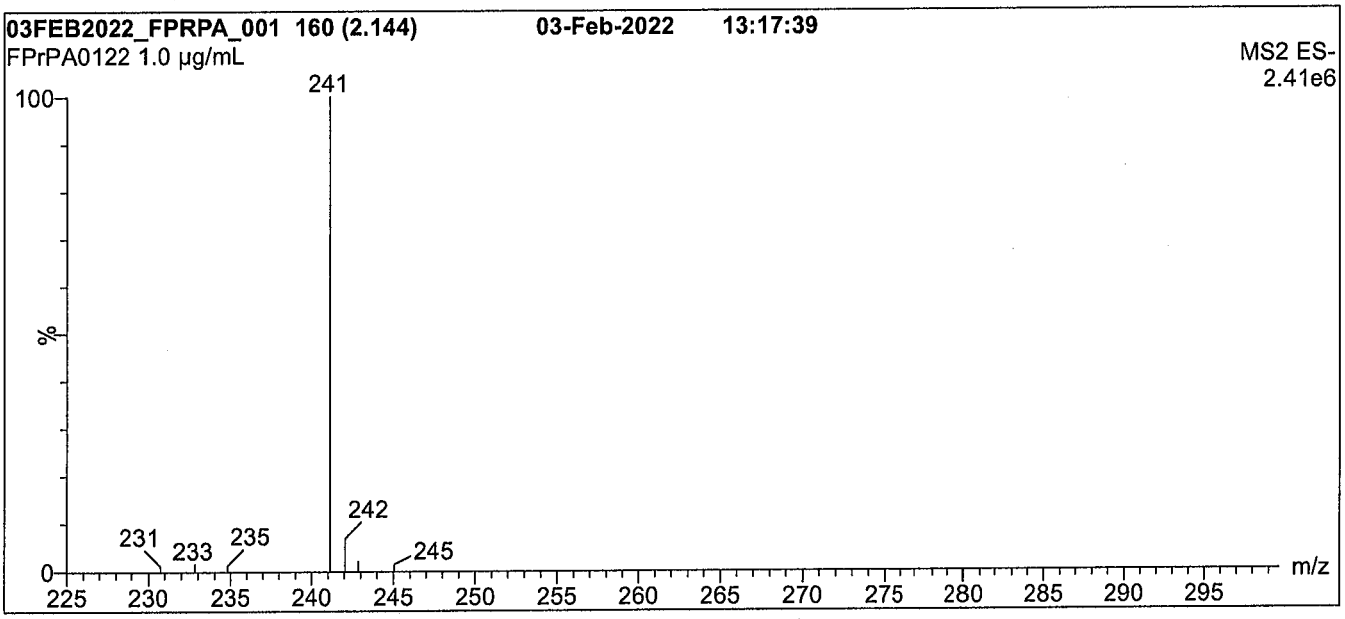
CALA Testing Accreditation No. A1226

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

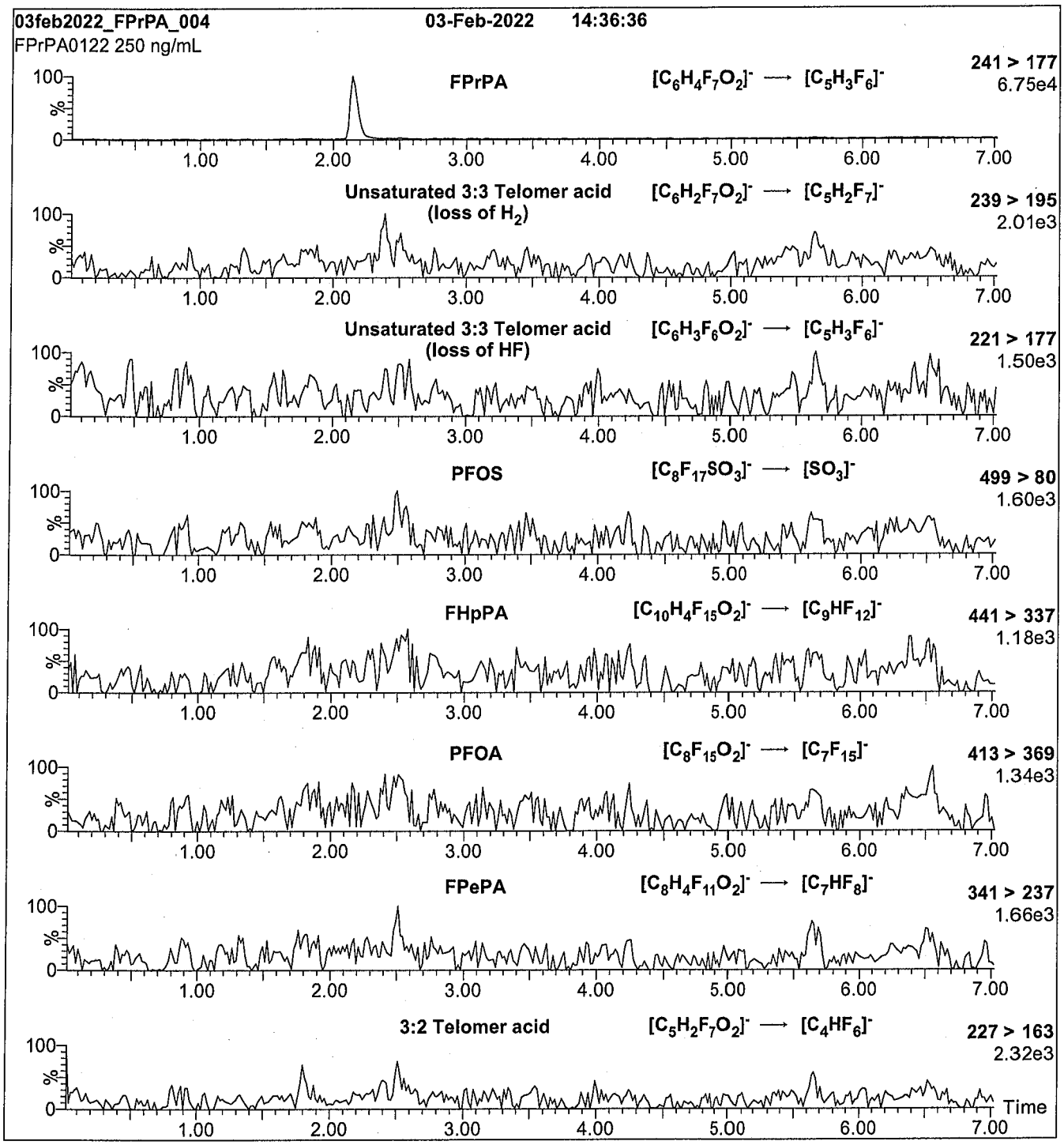
Flow: 300 µL/min

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

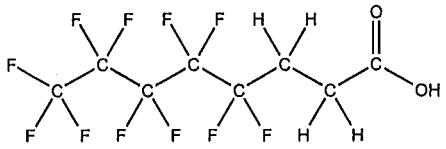
Reviewed By

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:

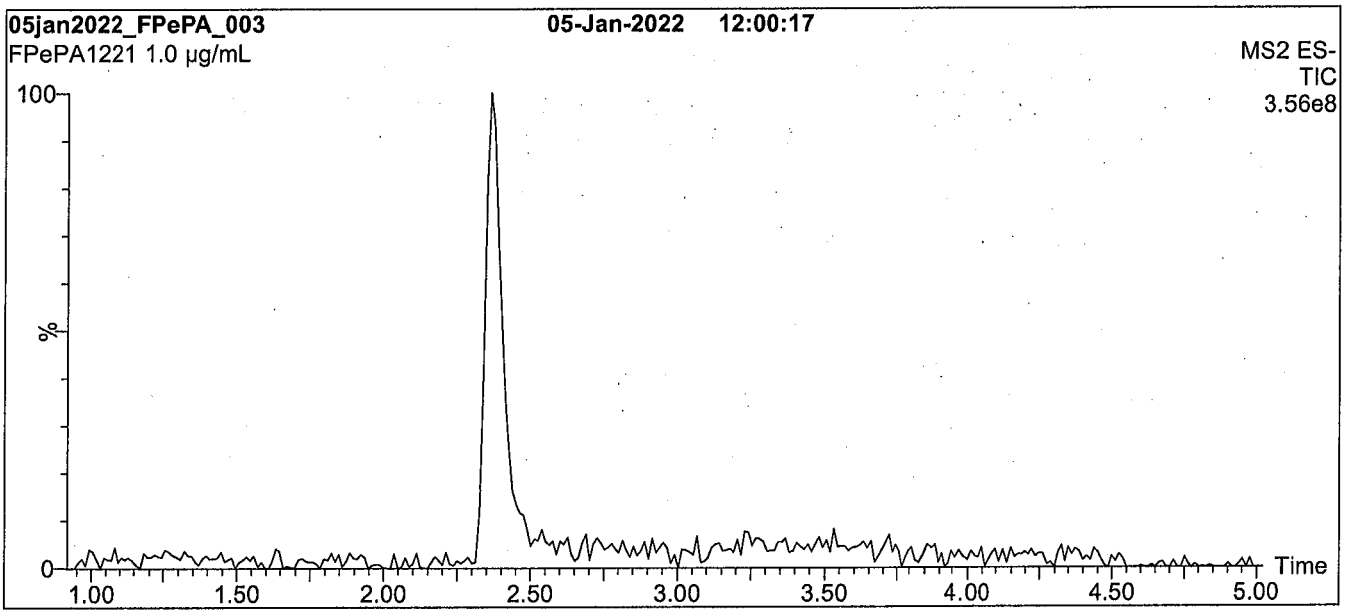
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

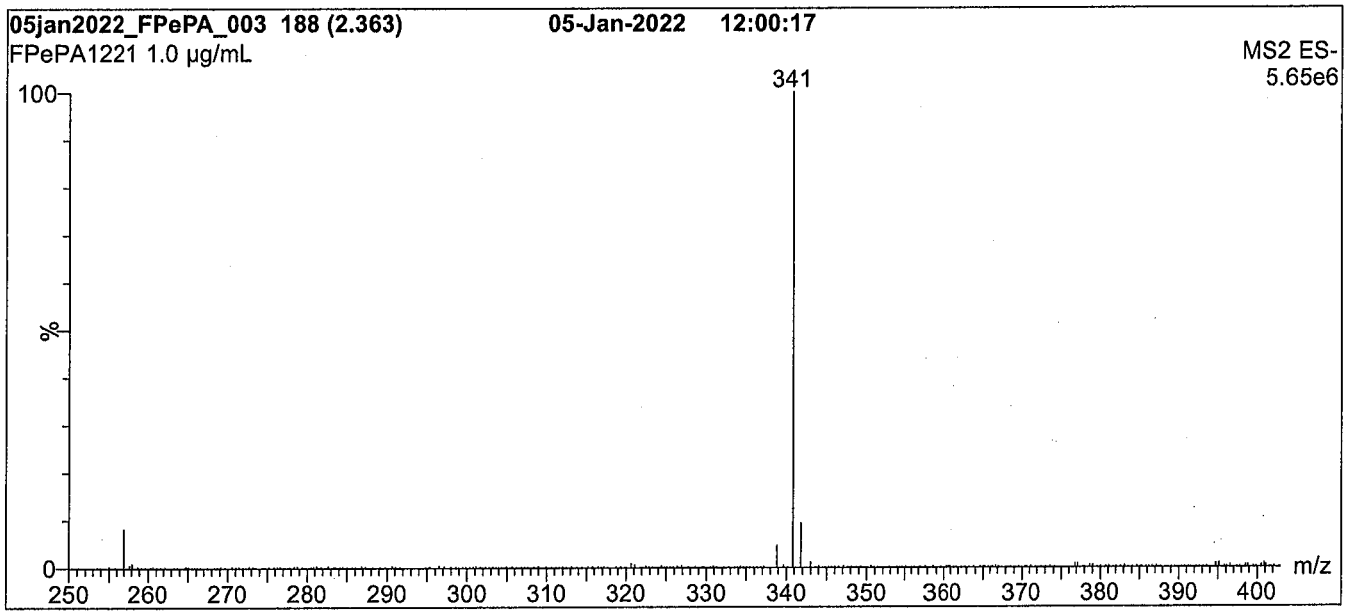
CALA Testing Accreditation No. A1226

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

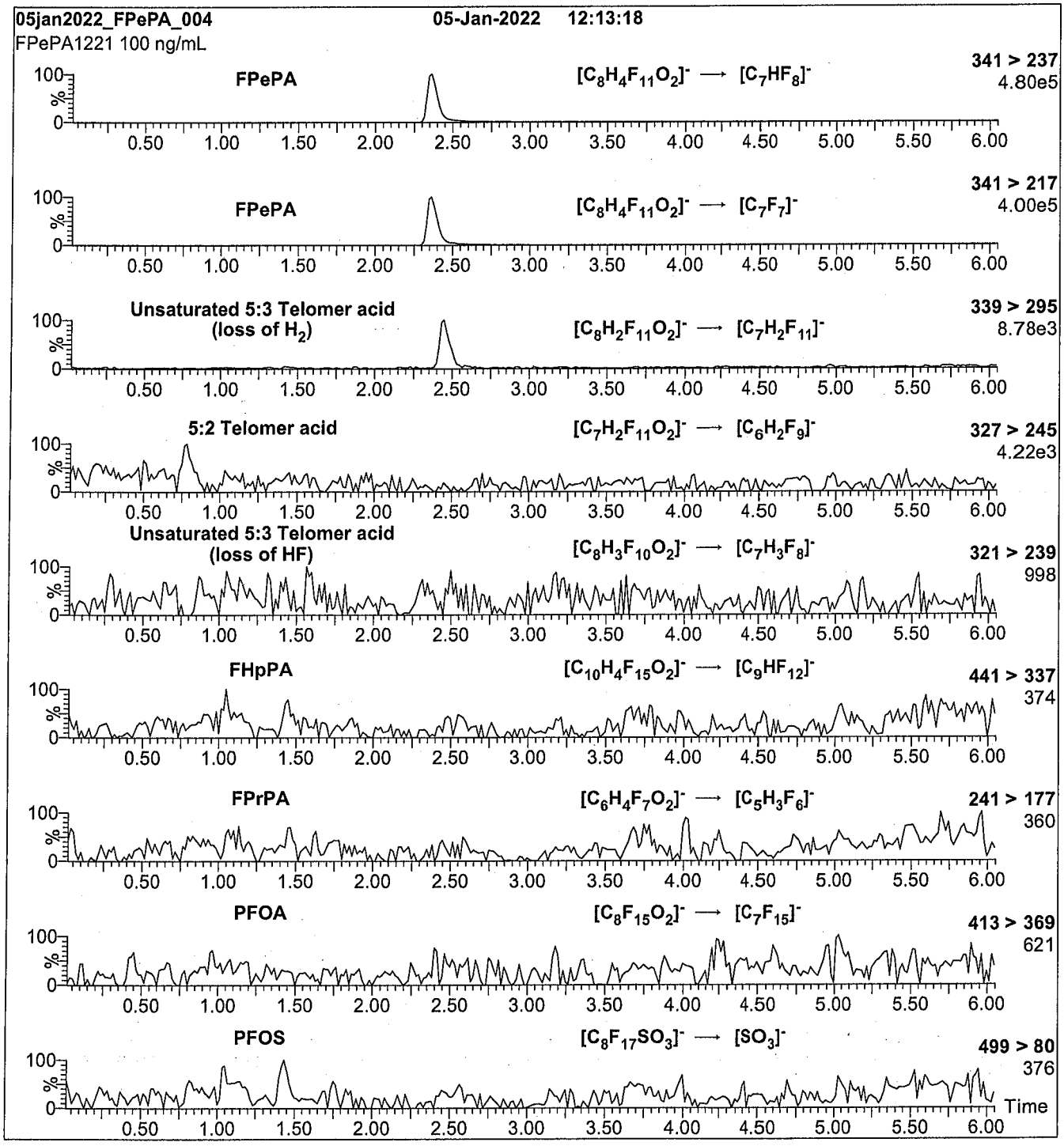
Flow: 300 µL/min

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

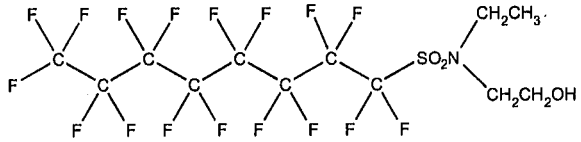
Date

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:

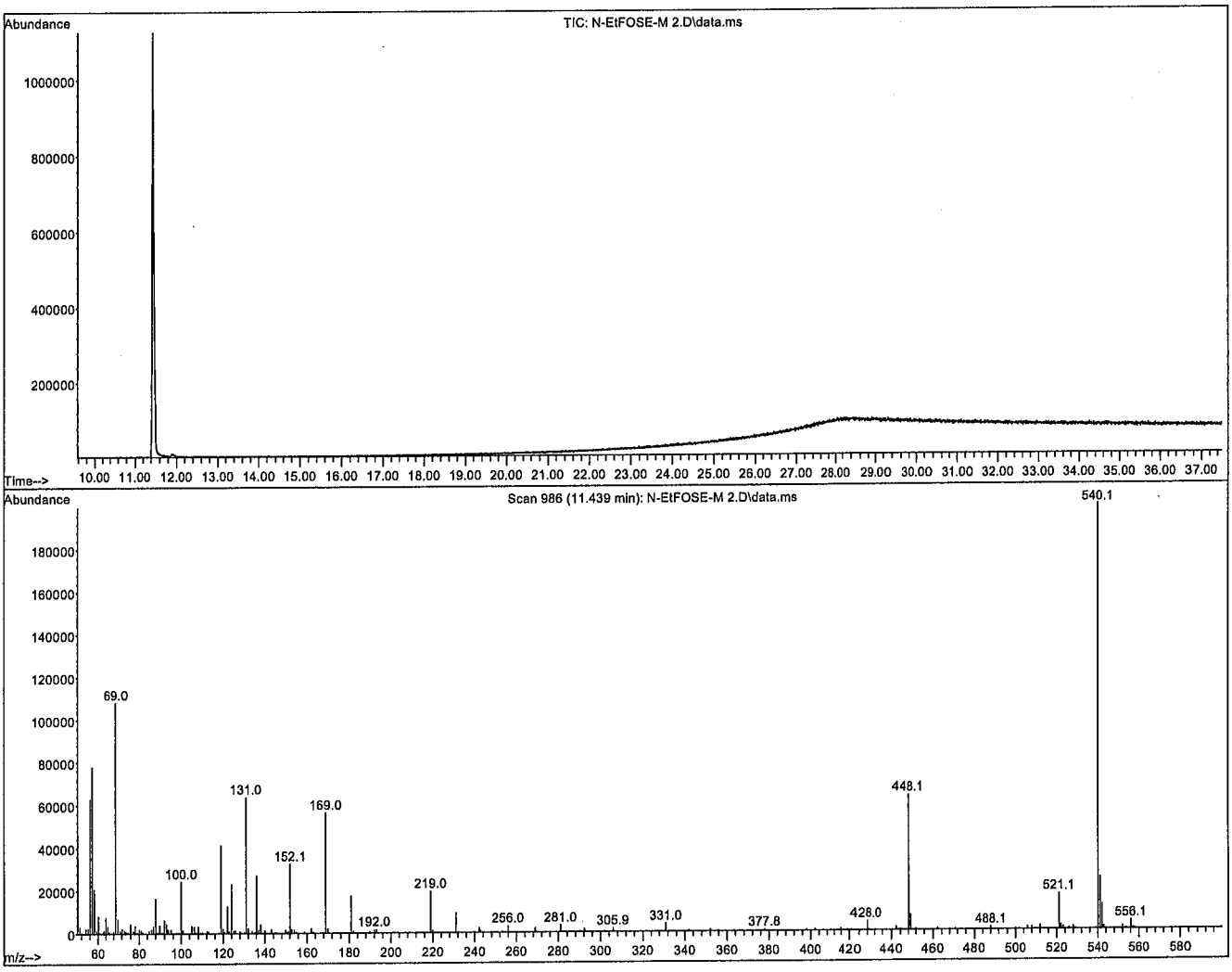
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

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)**



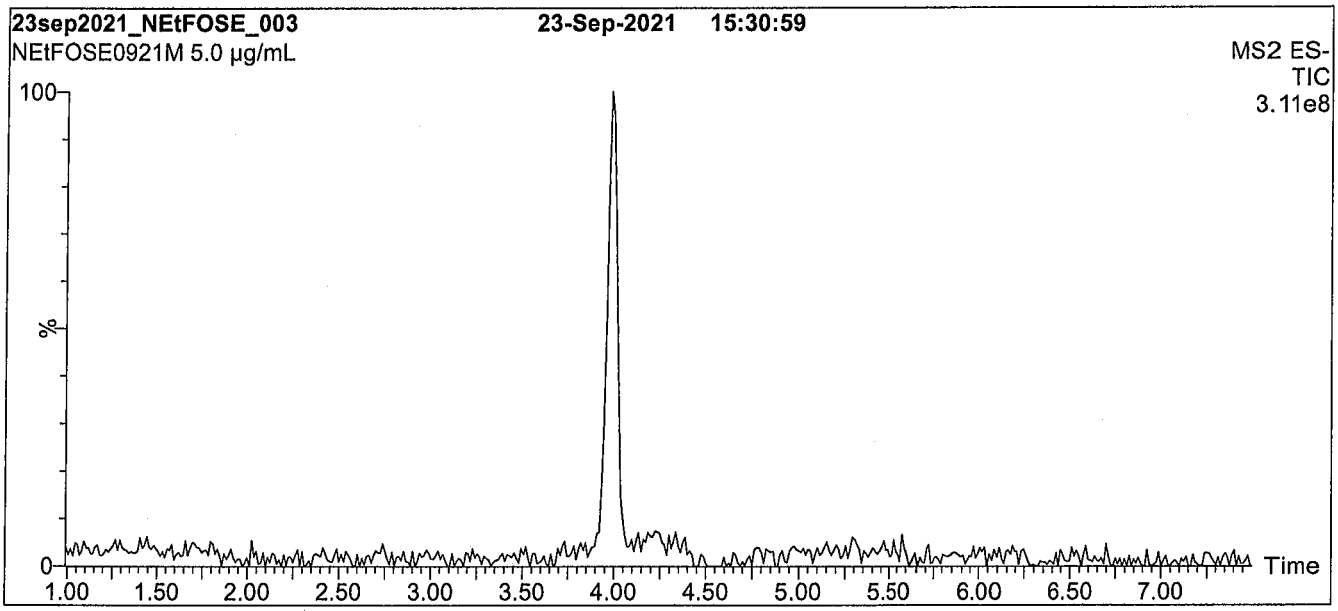
Conditions for Figure 1:

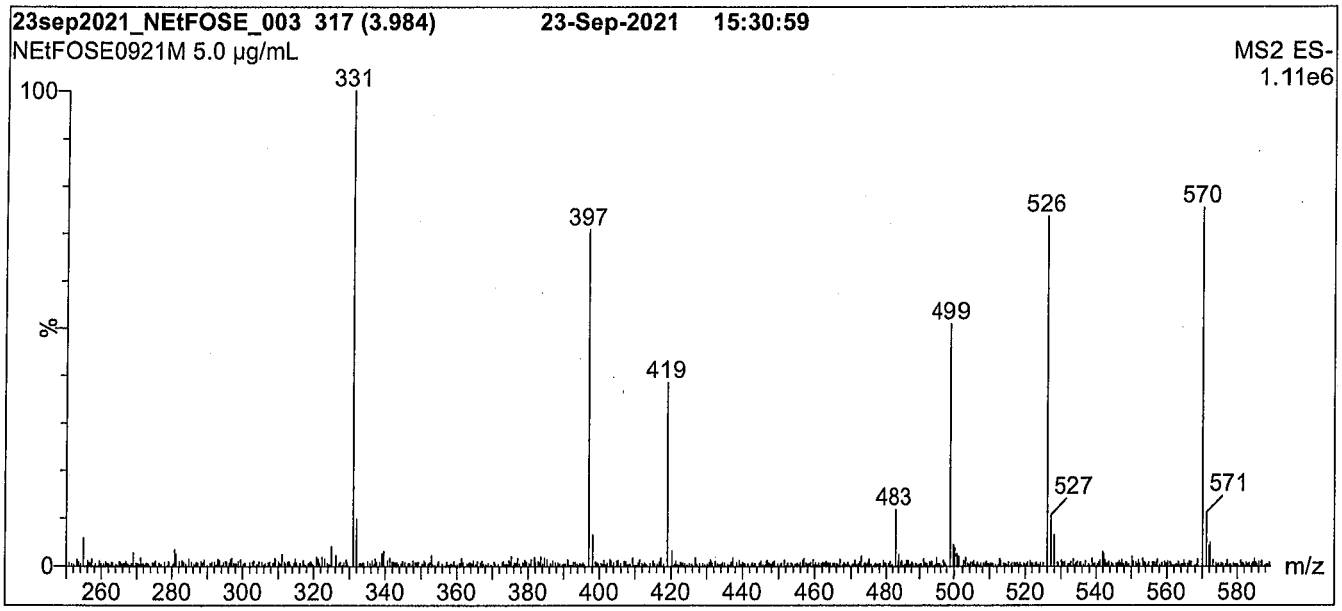
Agilent 7890A HRGC
Agilent 5975C MSD

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

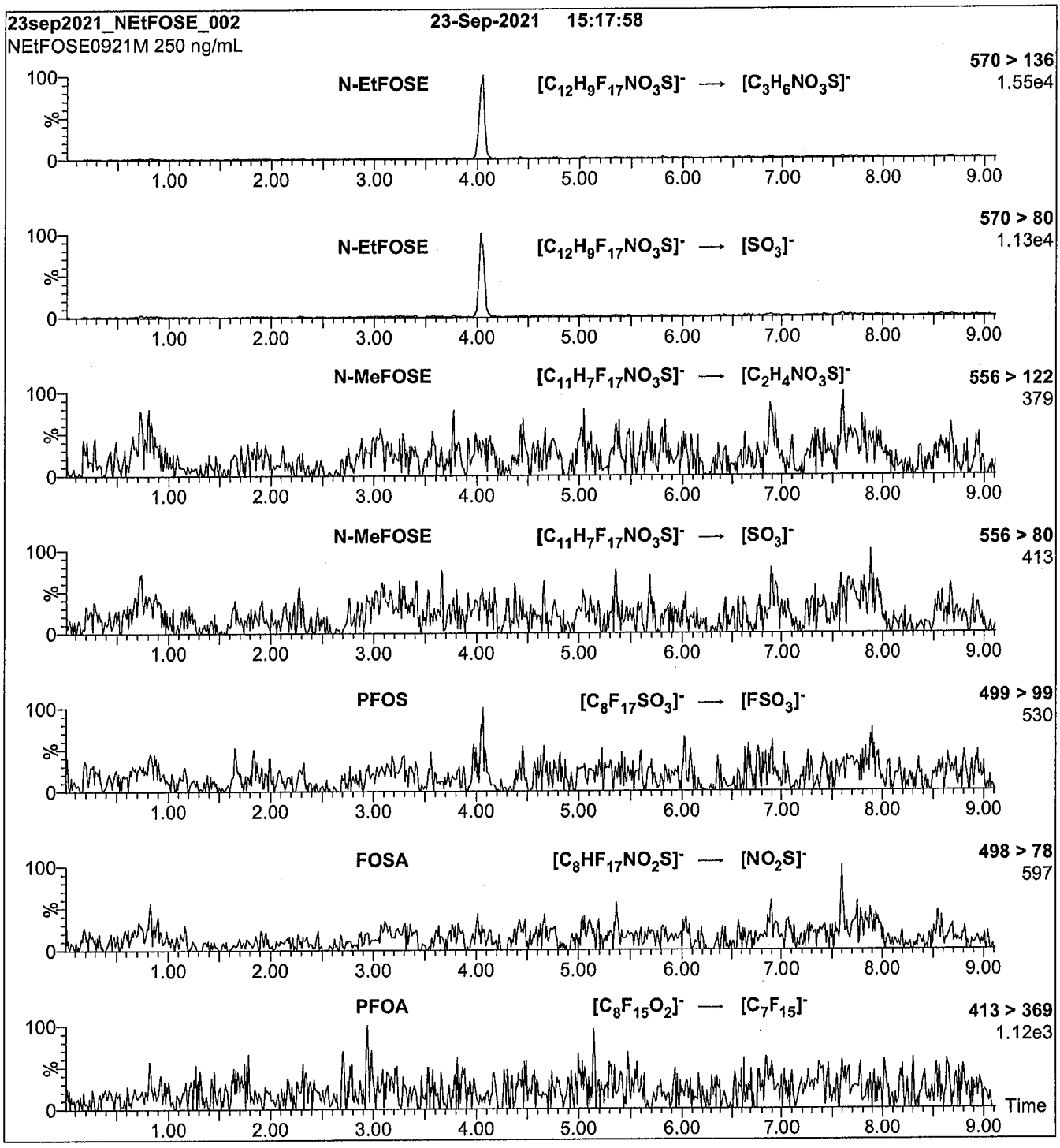
Flow: 300 µL/min

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

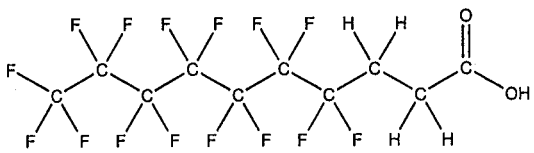
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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:

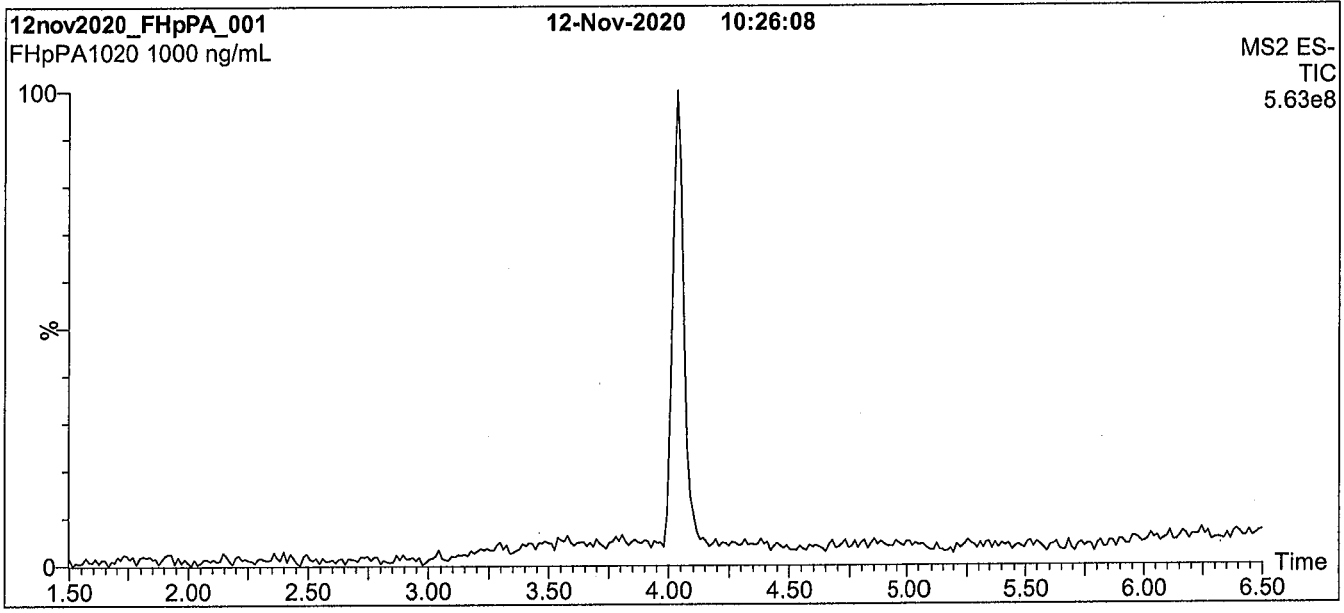
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

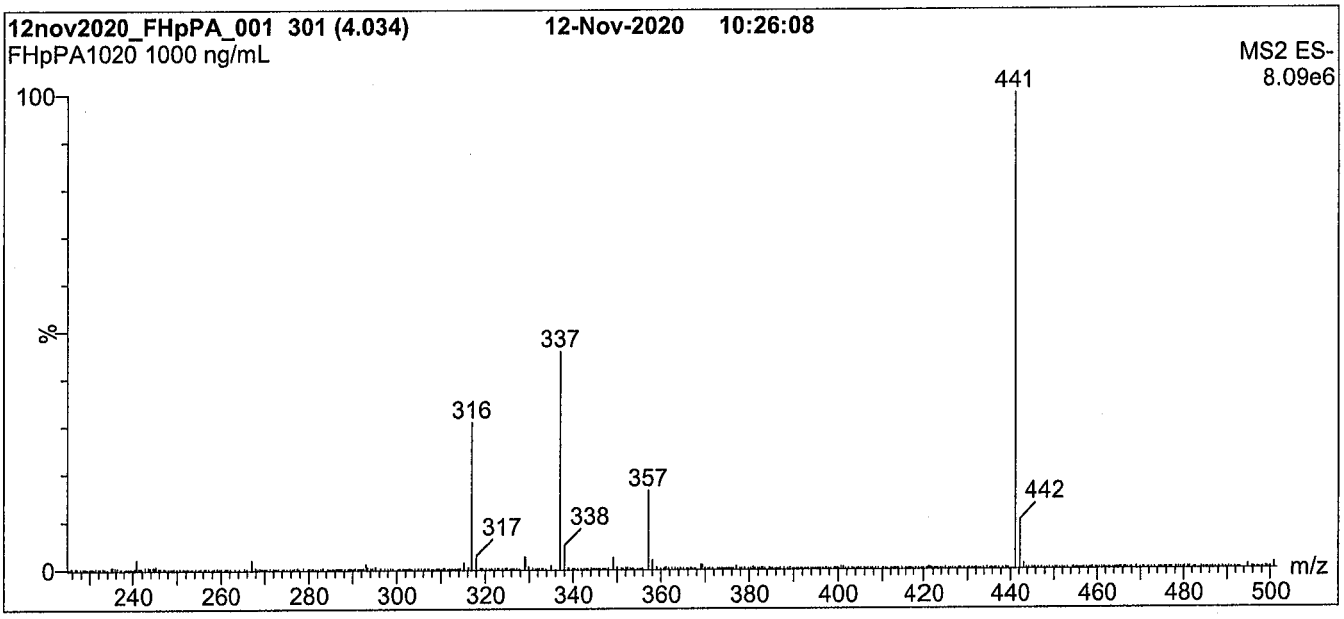
CALA Testing Accreditation No. A1226

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

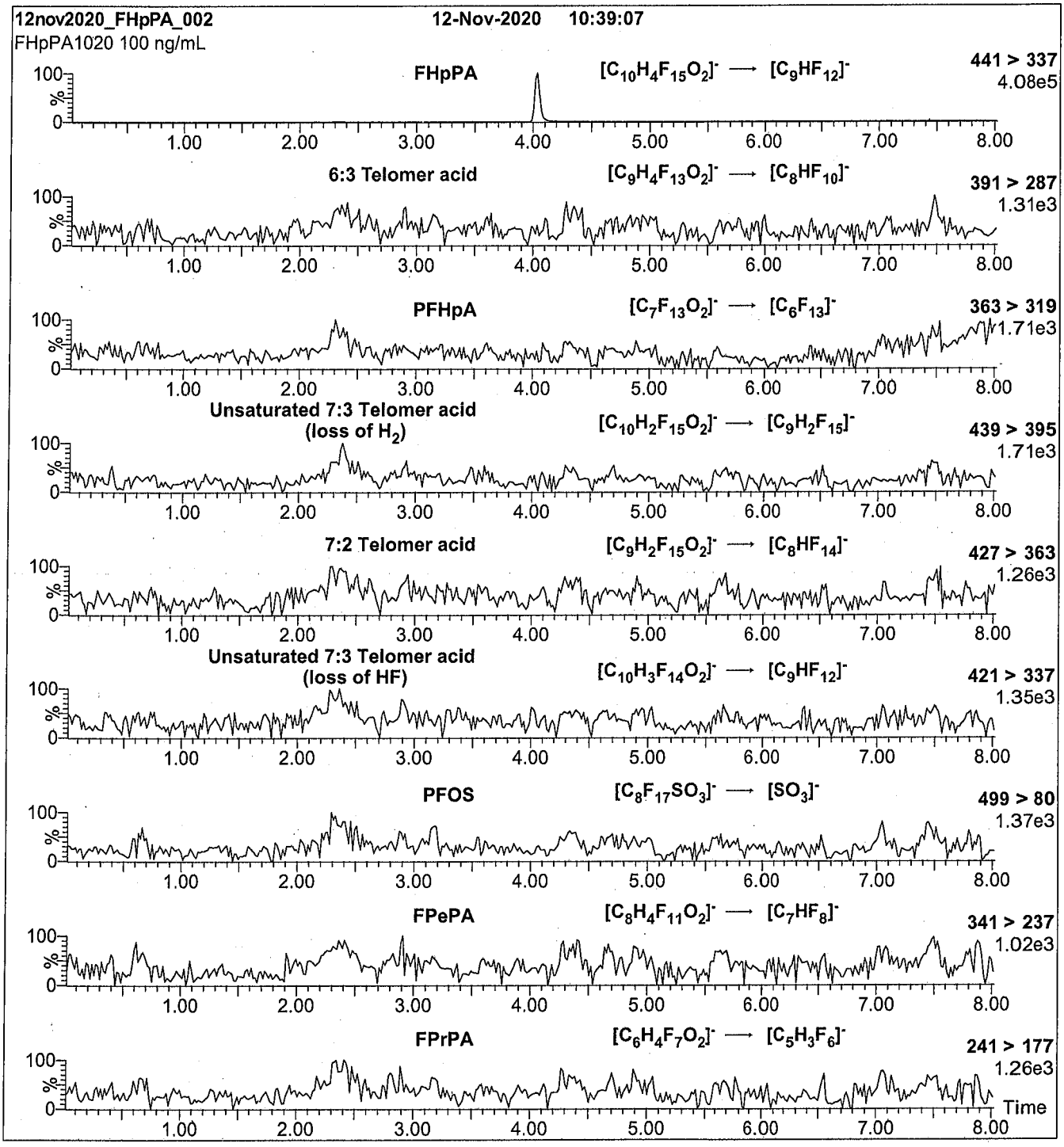
Flow: 300 µL/min

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

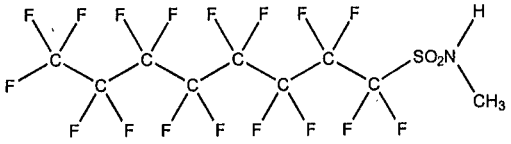
Reviewed By

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:

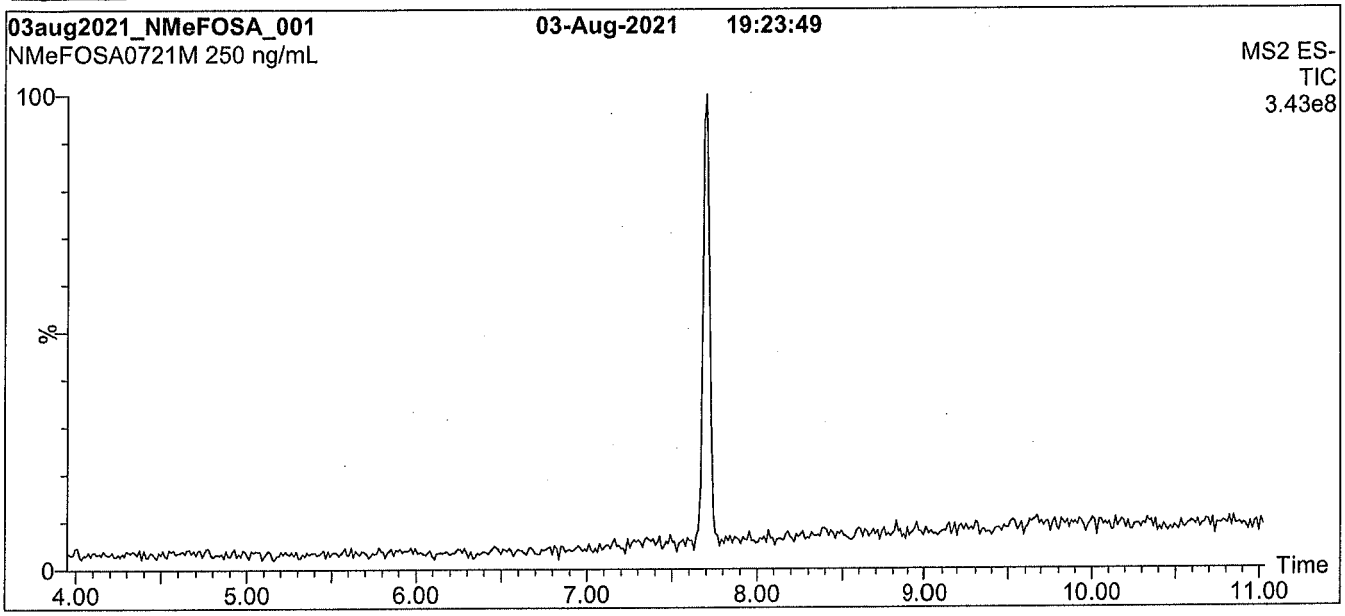
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

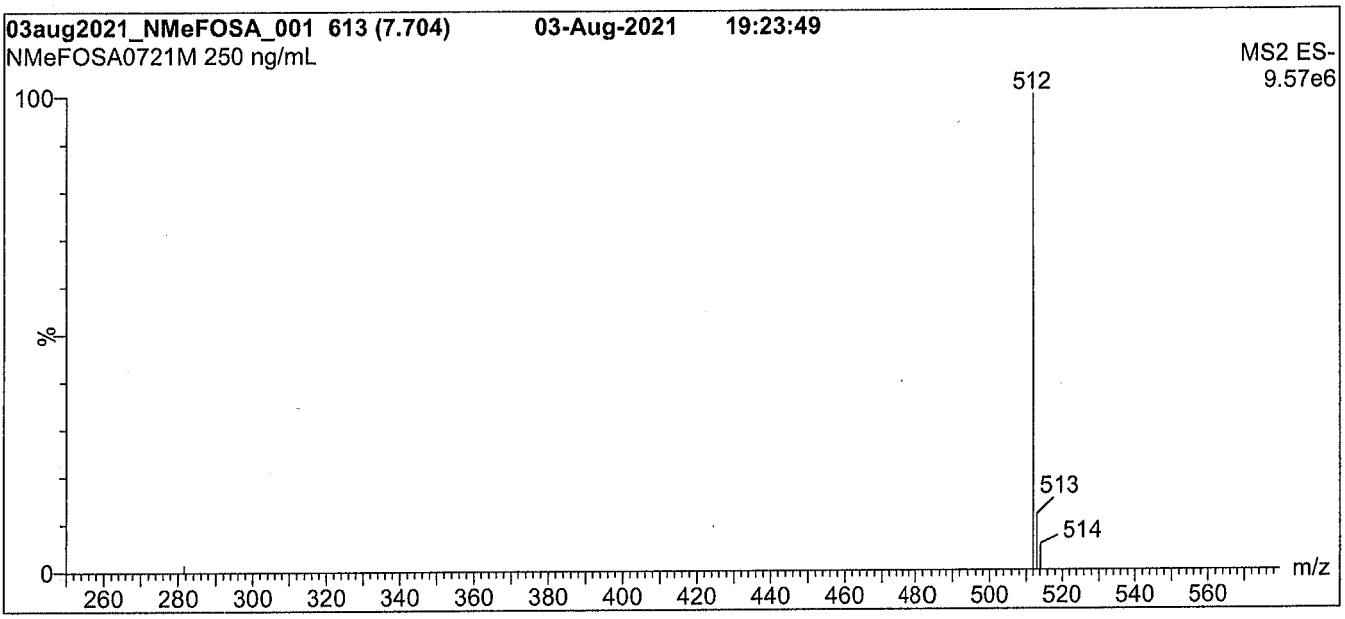
CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED AR1523 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **N-MeFOSA-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

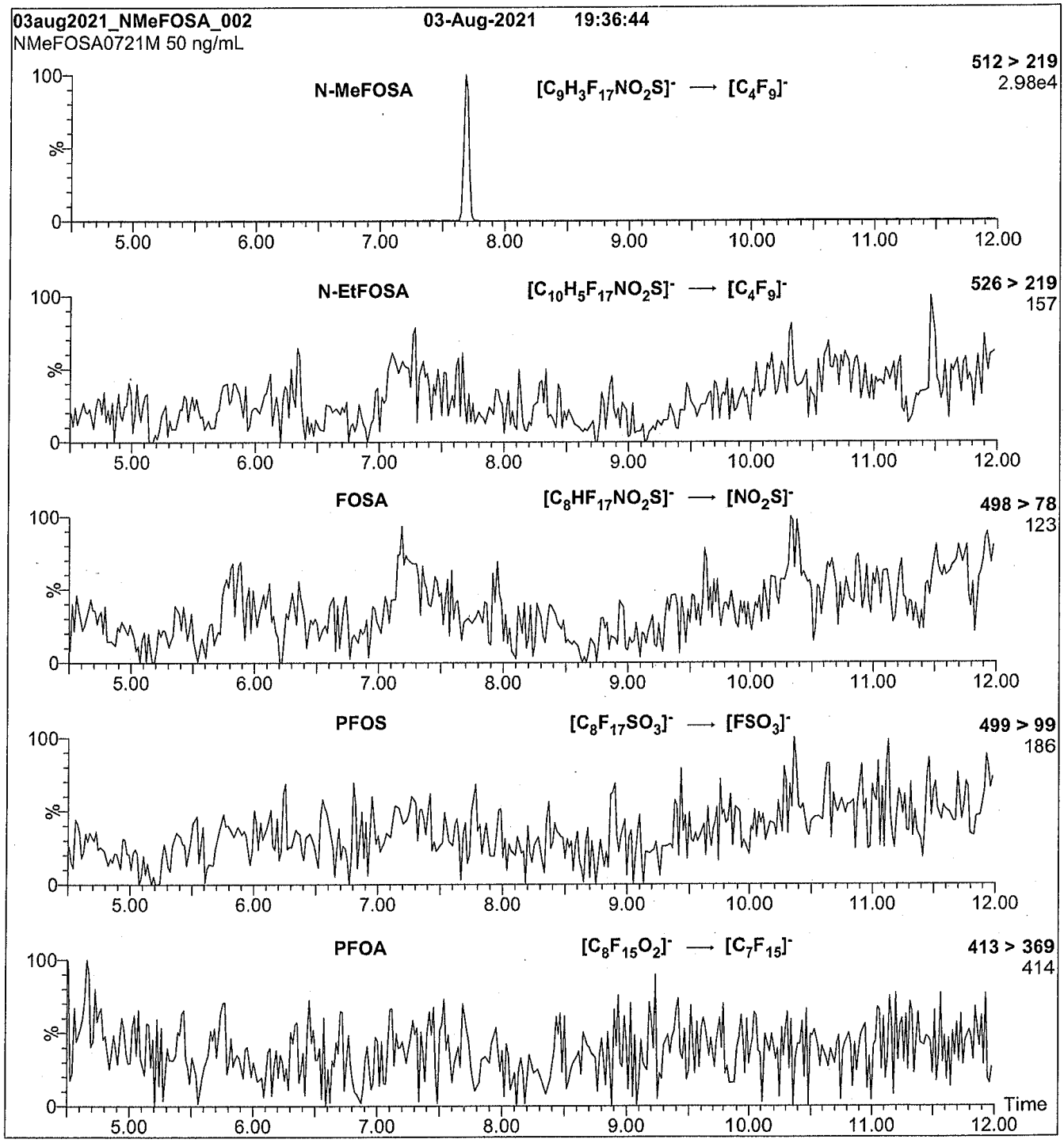
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 1.00
Cone Voltage (V) = 44.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Figure 2: **N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (N-MeFOSA-M)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.41e-3
Collision Energy (eV) = 24

Analytical Standard Record

22C0312

Description:	PFAS - SAS NMeFOSA 50ug/mL	Expires:	08/03/2026
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Dipti Gokal
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 16:00 by DAG

Analyte	Parent	CAS Number	Concentration	Units
NMeFOSA		31506-32-8	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

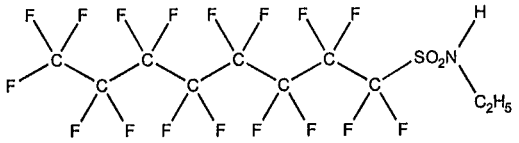
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

LOT NUMBER: NEtFOSA0821M
22C0313

CAS #: 4151-50-2

STRUCTURE:



MOLECULAR FORMULA:	$C_{10}H_6F_{17}NO_2S$	**MOLECULAR WEIGHT:**	527.20
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	08/12/2021		
EXPIRY DATE: (mm/dd/yyyy)	08/12/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

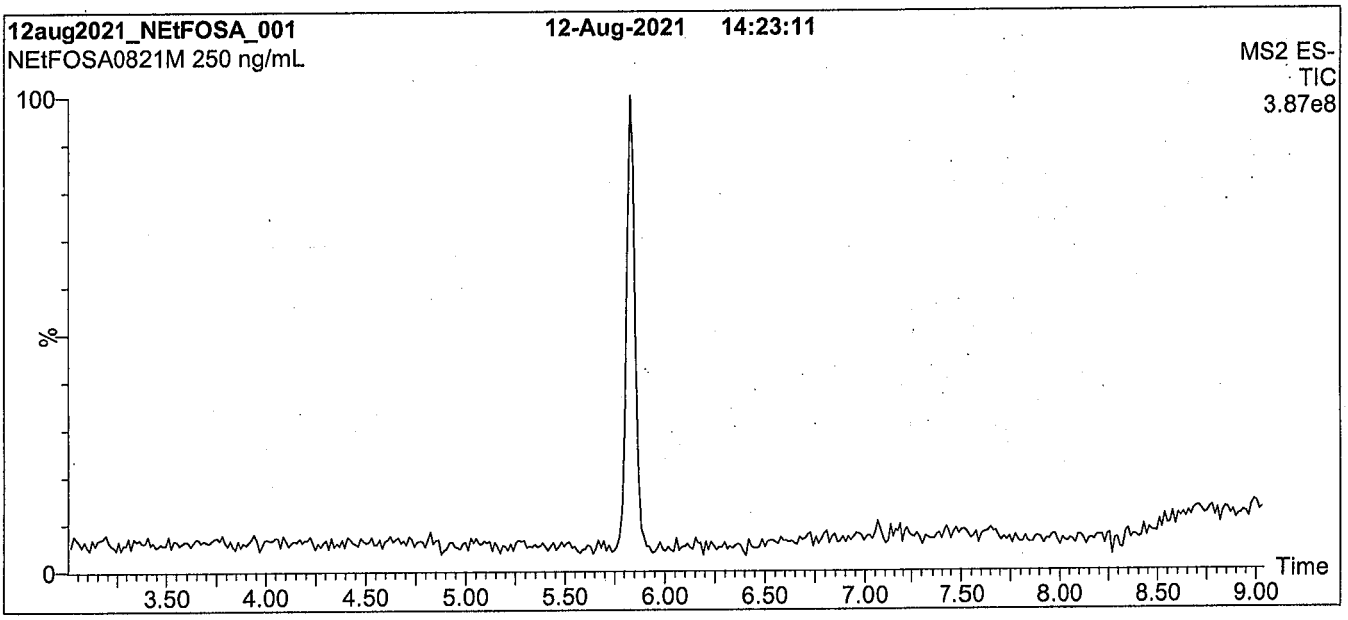
- See page 2 for further details.

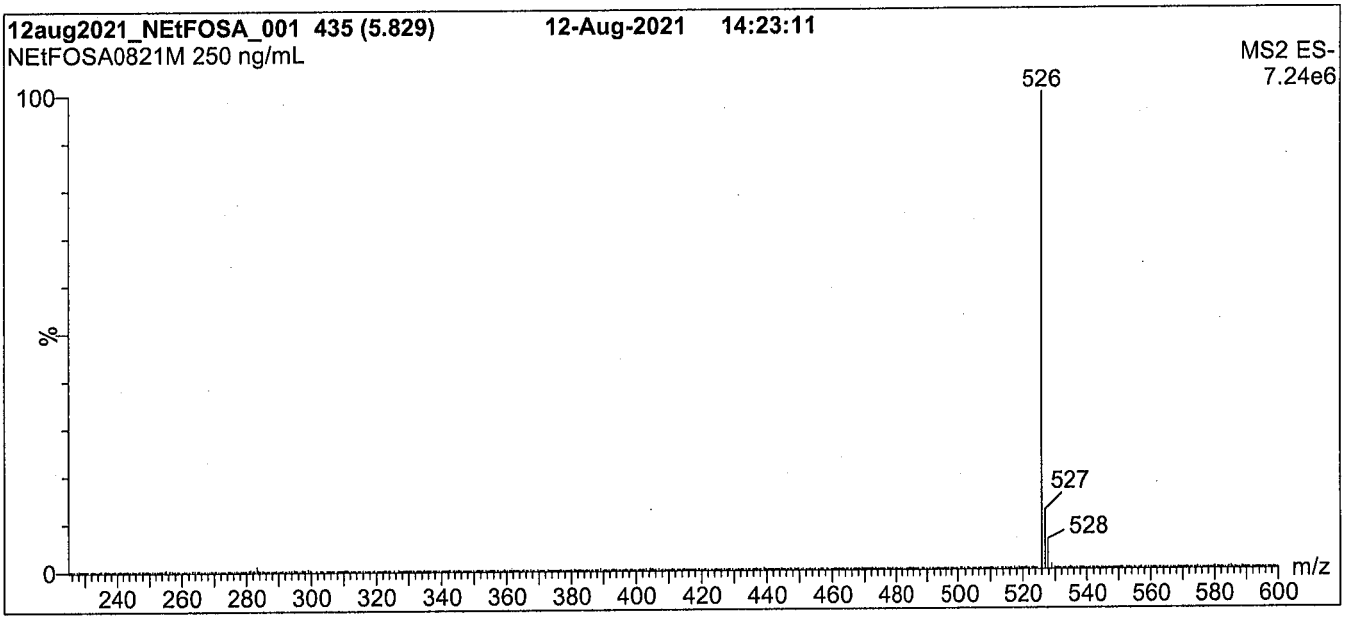
FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 08/16/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

Figure 1: **N-EtFOSA-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% H_2O / 70% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for
2 min before returning to initial conditions in 0.75 min.
Time: 12 min

Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 1.00
Cone Voltage (V) = 44.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

Analytical Standard Record

22C0313

Description:	PFAS - SAS NEtFOSA 50ug/mL	Expires:	08/12/2026
Standard Type:	Other	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: NEtFOSA0821M)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	08/17/2022 10:49 by LYA

Analyte	Parent	CAS Number	Concentration	Units
NEtFOSA		4151-50-2	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF 22F0058

Native Replacement PFAS Solution/Mixture

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-PF3OUdS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

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

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

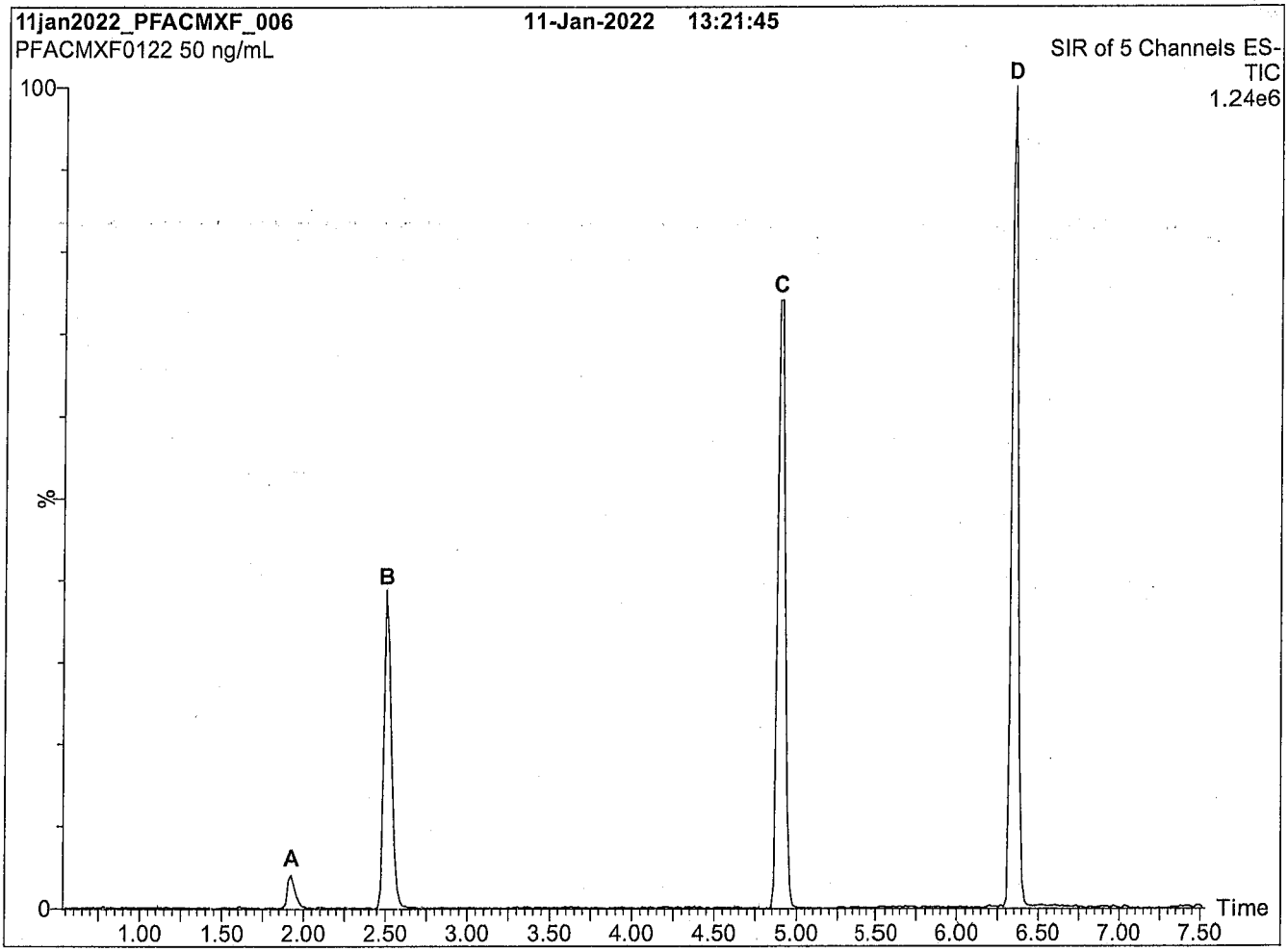
Table A: **PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))**

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 01/12/2022
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **PFAC-MXF; LC/MS Data (SIR)**



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

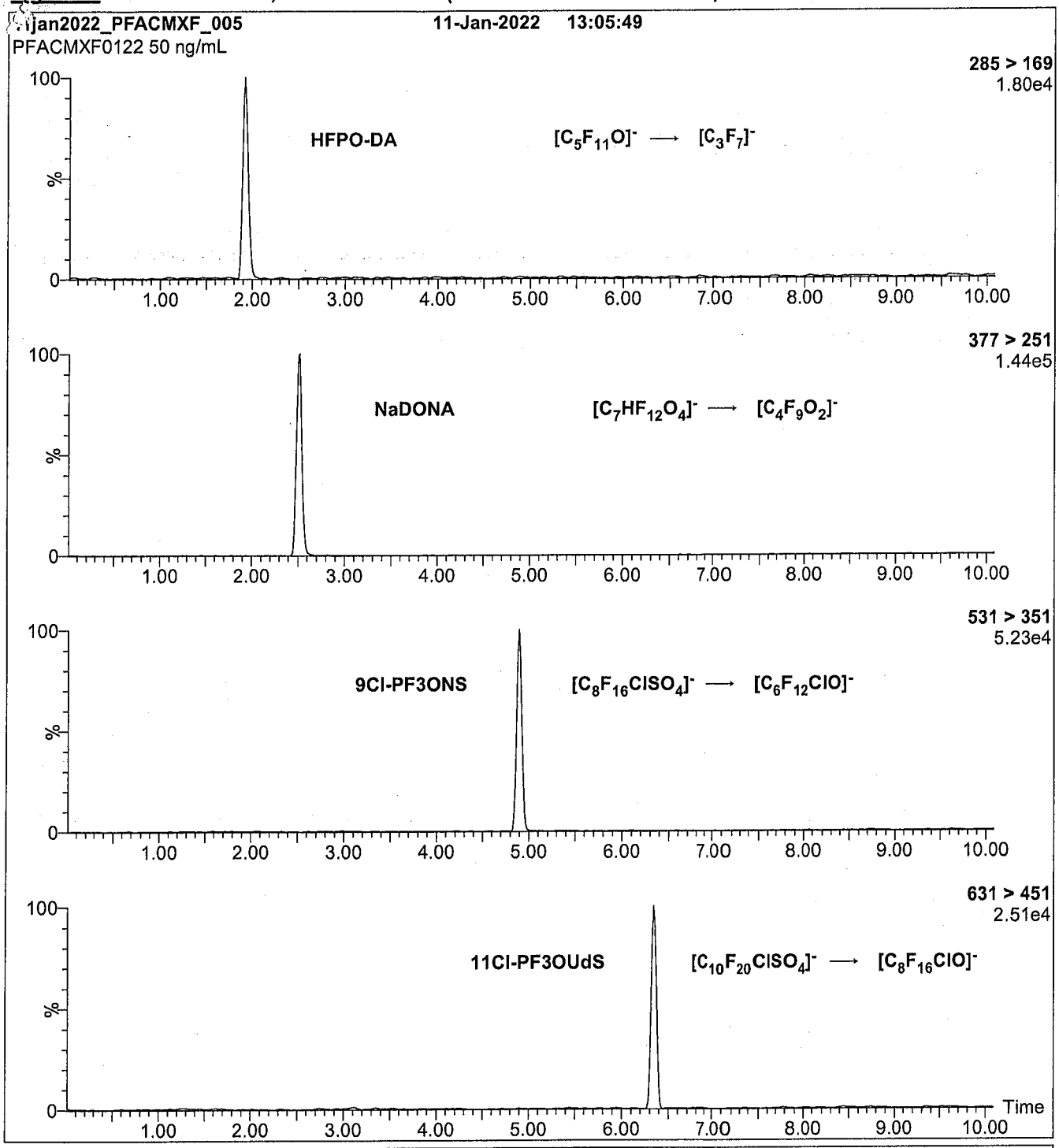
Flow: 300 µL/min

MS Parameters:

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = variable (15-74)
Desolvation Temperature (°C) = 325
Desolvation Gas Flow (L/hr) = 1000

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



Conditions for Figure 2:

Injection: On-column (PFAC-MXF)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:
Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 6-60 (variable)

Analytical Standard Record

22F0058

Description:	PFAS - MIX MXF 2ug/mL	Expires:	01/11/2025
Standard Type:	Other	Prepared:	01/10/2022
Solvent:	MeOH	Prepared By:	Lizbeth Andres
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	09/15/2022 09:32 by DAG

Analyte	Parent	CAS Number	Concentration	Units
11CL-PF3OUDS		763051-92-9	1.89	ug/mL
9CL-PF3ONS		756426-58-1	1.87	ug/mL
ADONA		919005-14-4	1.89	ug/mL
HFPO-DA		13252-13-6	2	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH 22F0059

Native Per- and Poly-fluoroalkyl Substance Solution/Mixture

PRODUCT CODE:	PFAC-MXH
LOT NUMBER:	PFACMXH0921
SOLVENT(S):	Methanol / Isopropanol (2%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	09/09/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of eleven native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), eight native perfluoroalkanesulfonates (C_4, C_5, C_7, C_9, C_{10} and C_{12} linear; C_6 and C_8 linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of br-NMeFOSAA
Table C: Isomeric Components and Percent Composition of br-NEtFOSAA
Table D: Isomeric Components and Percent Composition of PFHxSK
Table E: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

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

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **PFAC-MXH; Components and Concentrations (µg/mL, ± 5% in methanol / isopropanol (2%) / water (<1%))**

Compound	Acronym	Concentration* (µg/mL)		Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	4.00		1
Perfluoro-n-pentanoic acid	PFPeA	2.00		2
Perfluoro-n-hexanoic acid	PFHxA	1.00		5
Perfluoro-n-heptanoic acid	PFHpA	1.00		7
Perfluoro-n-octanoic acid	PFOA	1.00		11
Perfluoro-n-nonanoic acid	PFNA	1.00		14
Perfluoro-n-decanoic acid	PFDA	1.00		18
Perfluoro-n-undecanoic acid	PFUdA	1.00		23
Perfluoro-n-dodecanoic acid	PFDoA	1.00		26
Perfluoro-n-tridecanoic acid	PFTrDA	1.00		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1.00		29
Perfluoro-1-octanesulfonamide	FOSA	1.00		25
N-methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	0.760		20
	N-MeFOSAA: ∑ branched isomers	0.240		17
N-ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	0.775		22
	N-EtFOSAA: ∑ branched isomers	0.225		21
Compound	**Acronym**	**Concentration* (µg/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1.00	0.887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1.00	0.941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	0.811	0.741	9
	PFHxSK: ∑ branched isomers	0.189	0.173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1.00	0.953	12
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	0.788	0.732	15
	PFOSK: ∑ branched isomers	0.211	0.196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1.00	0.962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1.00	0.965	24
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1.00	0.970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4.00	3.75	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4.00	3.80	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4.00	3.84	16

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 09/23/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **br-NMeFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	N-methylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(CH_3)CH_2CO_2H$	76.0	76.0
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_3)CH_2CO_2H$	0.7	24.0
3	N-methylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(CH_3)CH_2CO_2H$	2.0	
4	N-methylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	6.0	
5	N-methylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(CH_3)CH_2CO_2H$	14.0	
6	N-methylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	0.2	
7	Other Unidentified Isomers		1.1	

* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

Table C: **br-NEtFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	N-ethylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2NCH_2CO_2H$ C_2H_5	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_2)_2SO_2NCH_2CO_2H$ CF_3 C_2H_5	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_2)_3SO_2NCH_2CO_2H$ CF_3 C_2H_5	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_2)_4SO_2NCH_2CO_2H$ CF_3 C_2H_5	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_2)_5SO_2NCH_2CO_2H$ CF_3 C_2H_5	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)(CF_2)_4SO_2NCH_2CO_2H$ CF_3 C_2H_5	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF(CF_2)_3SO_2NCH_2CO_2H$ CF_3 C_2H_5	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF_2CF(CF_2)_2SO_2NCH_2CO_2H$ CF_3 C_2H_5	0.3	
9	Other Unidentified Isomers		1.3	

* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

Table D: **PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FSO_3^-K^+$	2.9	18.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2SO_3^-K^+$	1.4	
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2CF_2SO_3^-K^+$	5.0	
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2CF_2CF_2SO_3^-K^+$	8.9	
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3\underset{\displaystyle CF_3}{\underset{\vert}{\overset{\displaystyle CF_3}{\overset{\vert}{C}}}}CF_2CF_2SO_3^-K^+$	0.2	
7	Other Unidentified Isomers		0.5	

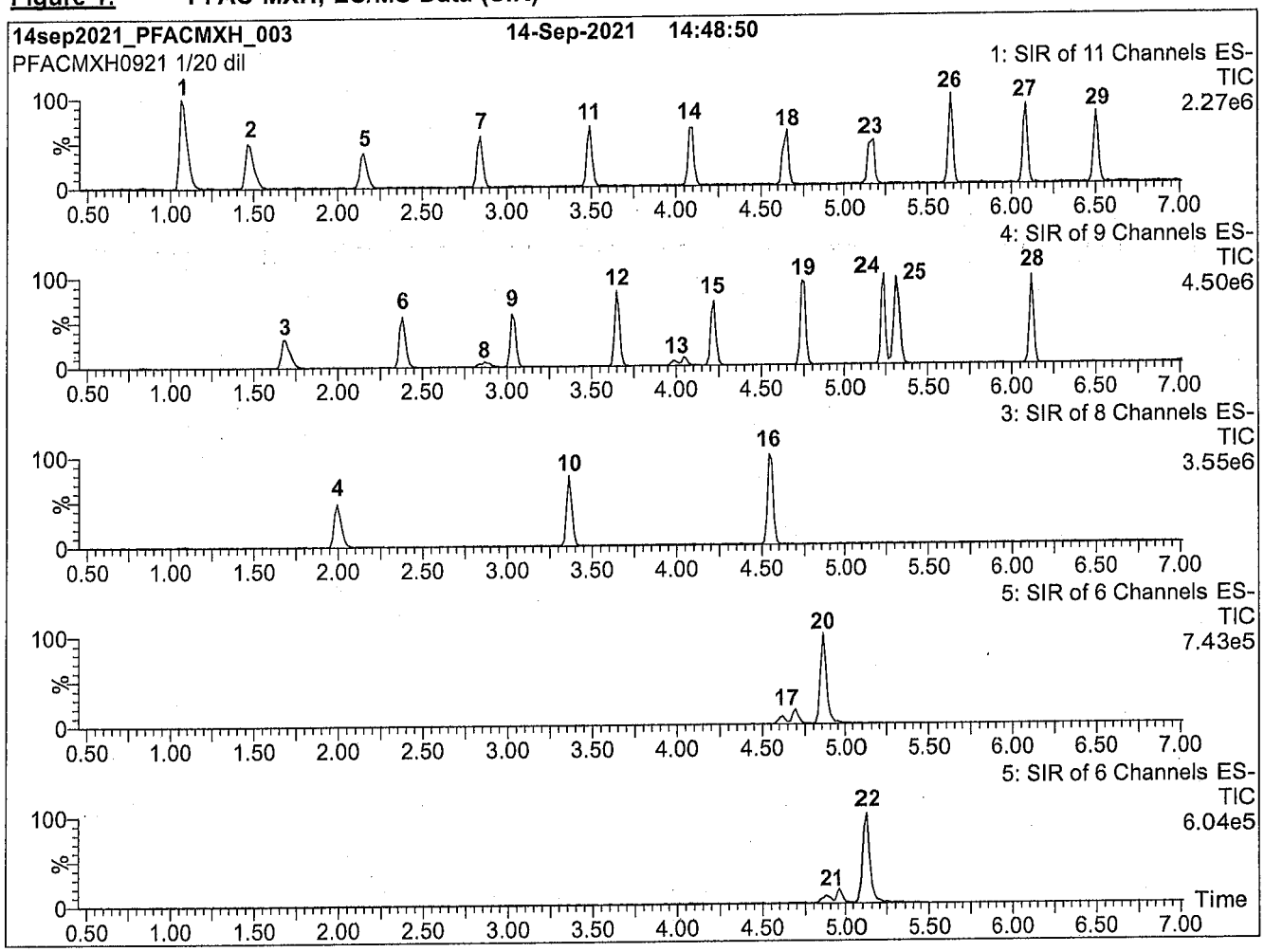
* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Table E: **PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6	
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9	
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0	
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3C(CF_3)_2CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2	
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)_2CF_2CF_2CF_2SO_3^-K^+$	0.03	
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07	

* Percent of total perfluorooctanesulfonate isomers only.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Figure 1: **PFAC-MXH; LC/MS Data (SIR)**



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 9 min and hold for 2 min
before returning to initial conditions in 1 min.
Time: 15 min

Flow: 300 µL/min

MS Parameters:

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = variable (2-74)
Desolvation Temperature (°C) = 350
Desolvation Gas Flow (L/hr) = 1000

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

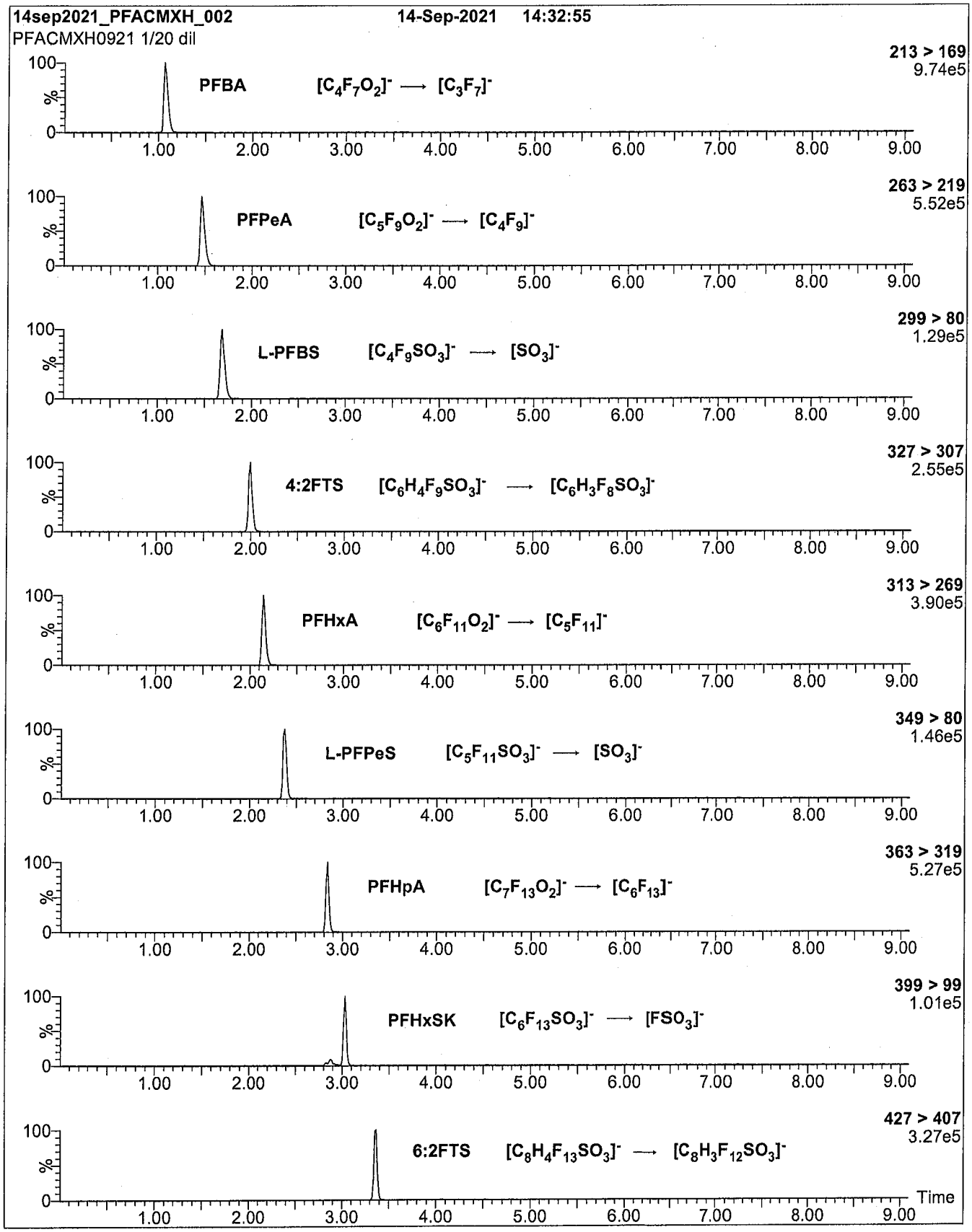


Figure 2: **PFAC-MXH; LC/MS/MS Data (Selected MRM Transitions)**

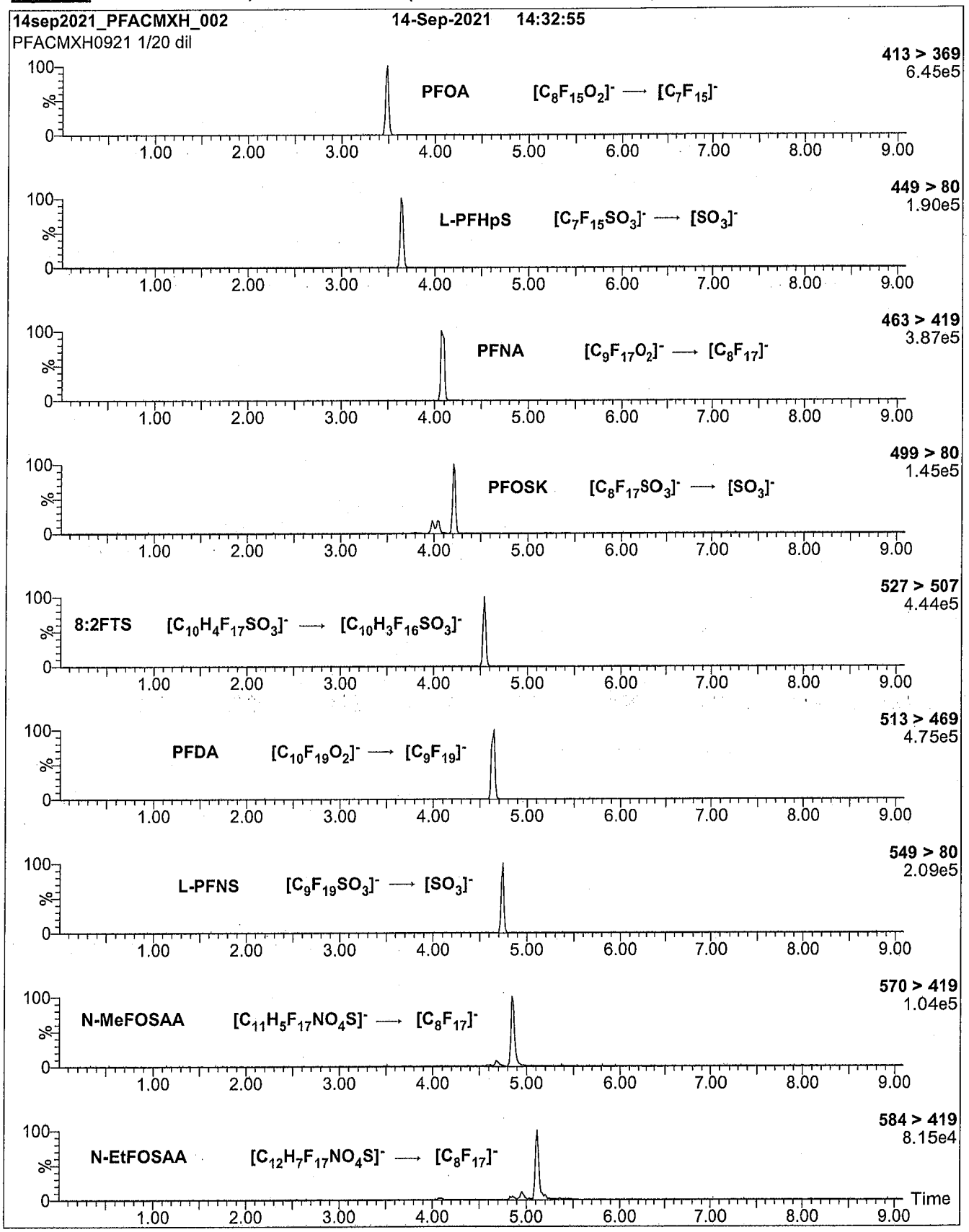
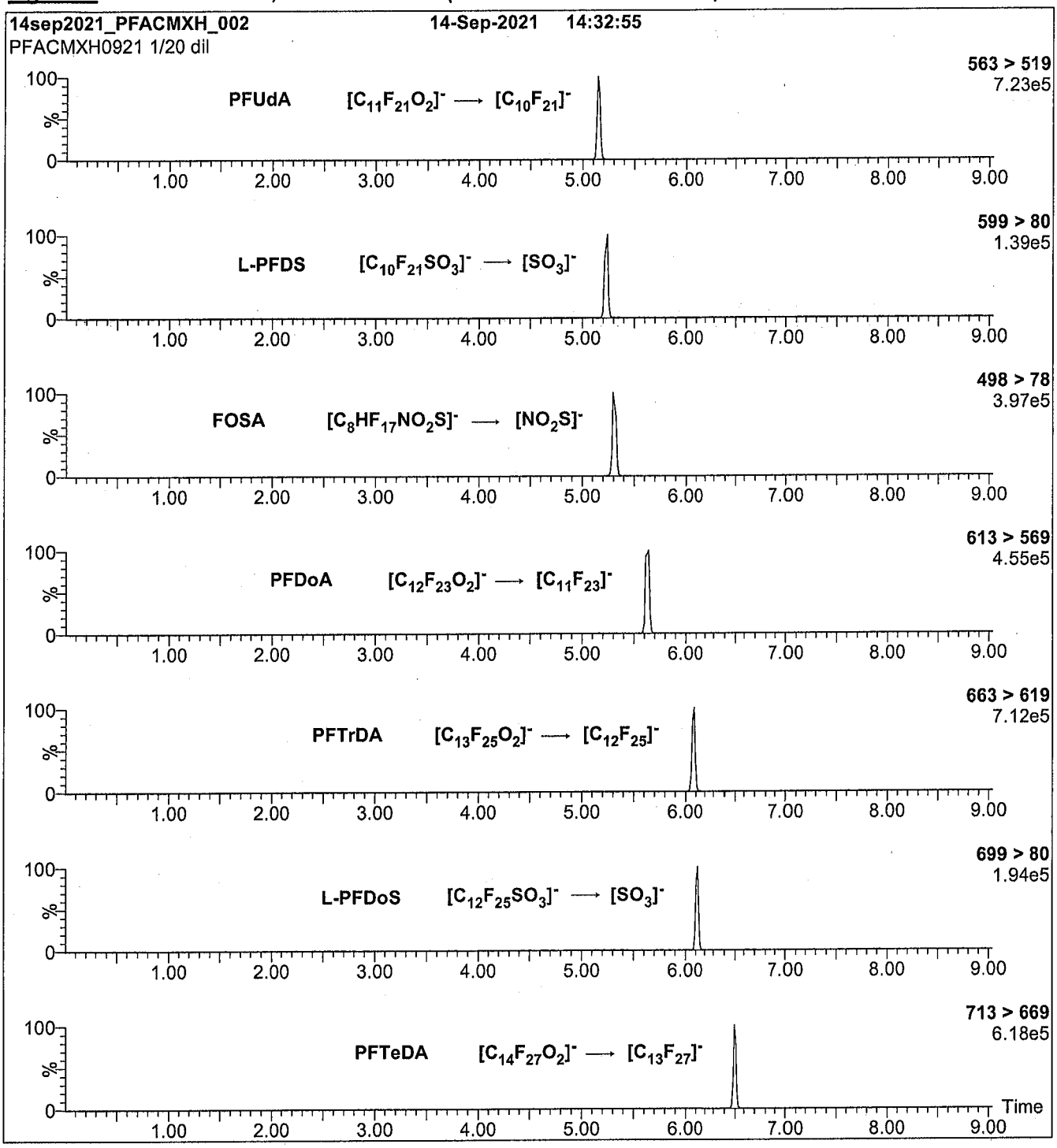


Figure 2: **PFAC-MXH; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFAC-MXH)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.31e-3

Collision Energy (eV) = 6-60 (variable)

Analytical Standard Record

22F0059

Description:	PFAS - MIX MXH 2ug/mL	Expires:	09/14/2026
Standard Type:	Other	Prepared:	09/09/2021
Solvent:	MeOH	Prepared By:	Lizbeth Andres
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	09/15/2022 09:33 by DAG

Analyte	Parent	CAS Number	Concentration	Units
4:2FTS		757124-72-4	3.75	ug/mL
6:2FTS		27619-97-2	3.8	ug/mL
8:2FTS		39108-34-4	3.84	ug/mL
NEtFOSAA		2991-50-6	1	ug/mL
NMeFOSAA		2355-31-9	1	ug/mL
PFBA		375-22-4	4	ug/mL
PFBS		375-73-5	0.887	ug/mL
PFDA		335-76-2	1	ug/mL
PFDOA		307-55-1	1	ug/mL
PFDOS		79780-39-5	0.97	ug/mL
PFDS		335-77-3	0.965	ug/mL
PFHPA		375-85-9	1	ug/mL
PFHPS		375-92-8	0.953	ug/mL
PFHXA		307-24-4	1	ug/mL
PFHXS		355-46-4	0.914	ug/mL
PFNA		375-95-1	1	ug/mL
PFNS		68259-12-1	0.962	ug/mL
PFOA		335-67-1	1	ug/mL
PFOS		1763-23-1	0.928	ug/mL
PFOSA		754-91-6	1	ug/mL
PFPEA		2706-90-3	2	ug/mL
PFPES		630402-22-1	0.941	ug/mL
PFTEDA		376-06-7	1	ug/mL
PFTRDA		72629-94-8	1	ug/mL
PFUnA		2058-94-8	1	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG 22F0061

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

PRODUCT CODE:	PFAC-MXG
LOT NUMBER:	PFACMXG0222
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	02/07/2022
LAST TESTED: (mm/dd/yyyy)	02/22/2022
EXPIRY DATE: (mm/dd/yyyy)	02/22/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

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

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

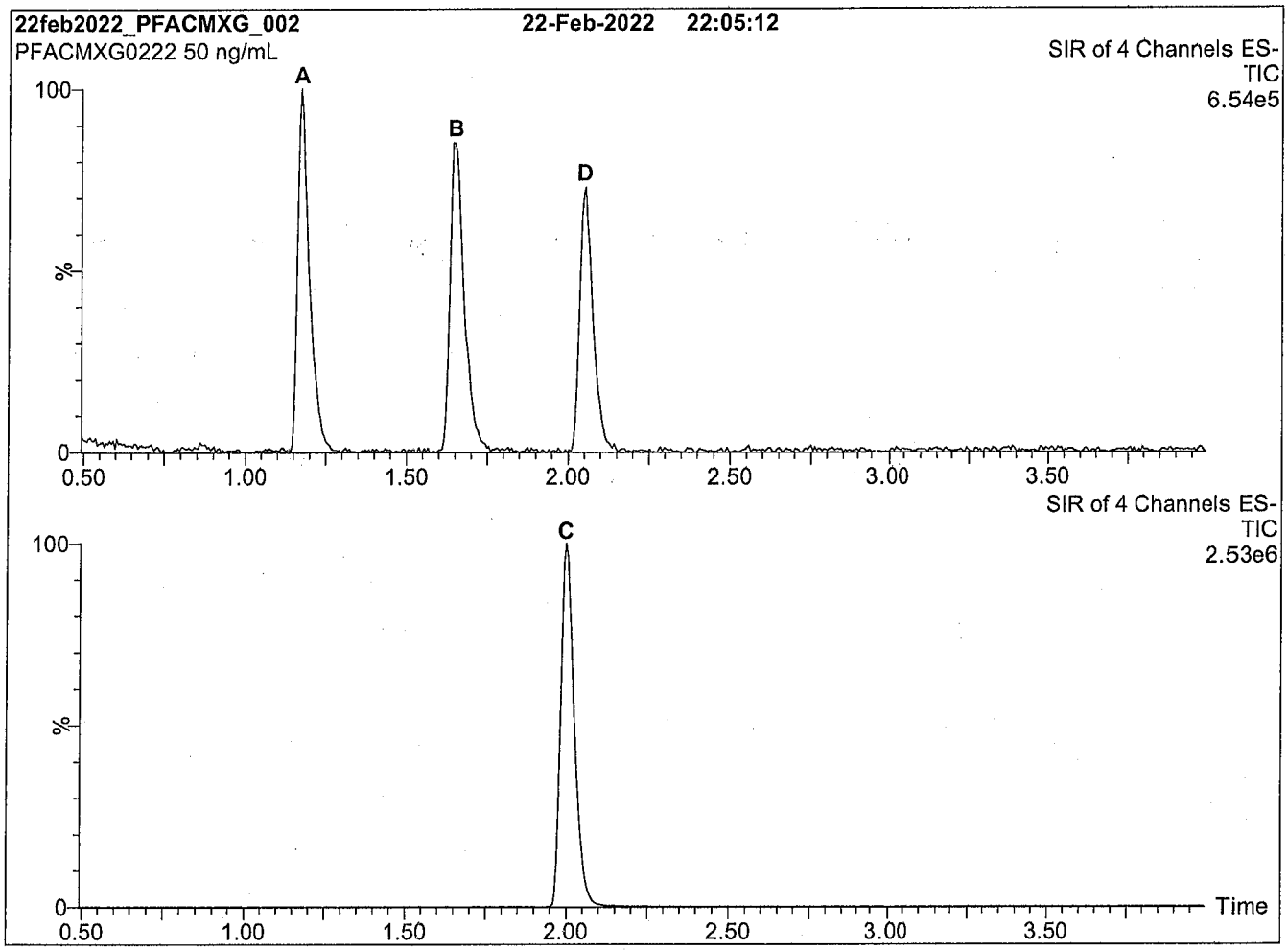
Table A: **PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 03/03/2022
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **PFAC-MXG; LC/MS Data (SIR)**



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 2 min
before returning to initial conditions in 0.75 min.
Time: 12 min

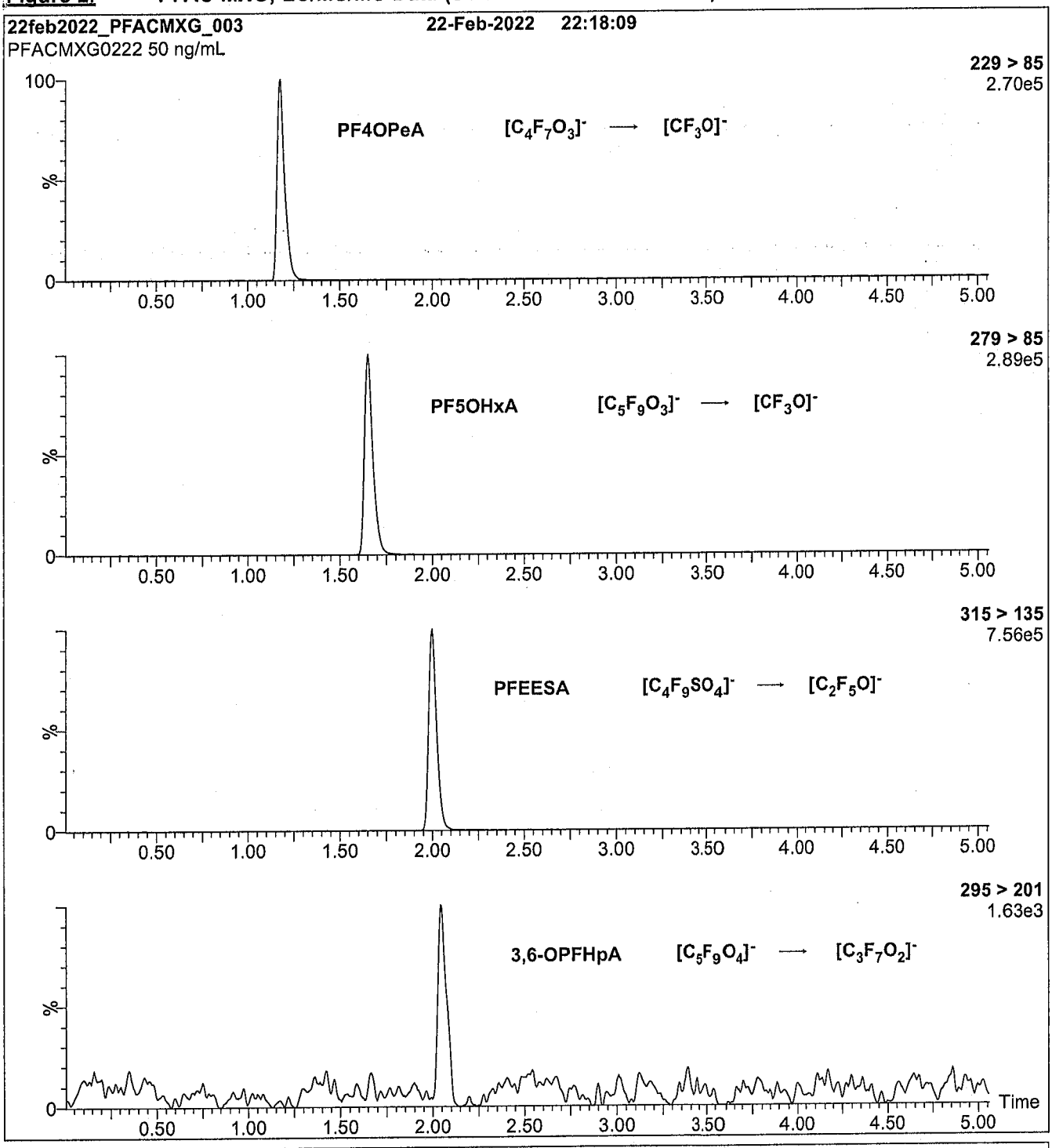
Flow: 300 µL/min

MS Parameters:

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 1.00
Cone Voltage (V) = variable (15-35)
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (L/hr) = 1000

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



Conditions for Figure 2:

Injection: On-column (PFAC-MXG)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:
Collision Gas (mbar) = 3.33e-3
Collision Energy (eV) = 8-48 (variable)

Analytical Standard Record

22F0061

Description:	PFAS - MIX MXG 2ug/mL	Expires:	02/22/2027
Standard Type:	Other	Prepared:	02/07/2022
Solvent:	MeOH	Prepared By:	Lizbeth Andres
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	09/15/2022 09:34 by DAG
Comments:	contains NFHDA PFMBA PFMPA PFEESA @ 2ug/mL		

Analyte	Parent	CAS Number	Concentration	Units
NFDHA		151772-58-6	2	ug/mL
PFEESA		113507-82-7	1.78	ug/mL
PFMBA		863090-89-5	2	ug/mL
PFMPA		377-73-1	2	ug/mL

Reviewed By

Date

Analytical Standard Record

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXG

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

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

Analytical Standard Record

22I0342

Description:	PFAS - MIX MXG 2ug/mL	Expires:	02/22/2027
Standard Type:	Other	Prepared:	02/07/2022
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	09/26/2022 09:55 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

22I0343

Description:	PFAS - MIX MXF 2ug/mL	Expires:	01/11/2025
Standard Type:	Other	Prepared:	09/26/2022
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	09/26/2022 09:47 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-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

22I0343

Description:	PFAS - MIX MXF 2ug/mL	Expires:	01/11/2025
Standard Type:	Other	Prepared:	01/10/2022
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	09/26/2022 09:54 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

APPL ID:22I0334

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

22I0344

Description:	PFAS - MIX MXH 1-4ug/mL	Expires:	08/08/2027
Standard Type:	Other	Prepared:	08/05/2022
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	09/26/2022 09:59 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

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

22J0552

Description:	PFAS - MIX 1633 200ng/mL	Expires:	01/11/2025
Standard Type:	Analyte Spike	Prepared:	10/31/2022
Solvent:	MeOH 62244	Prepared By:	Dipti Gokal
Final Volume (mls):	6	Department:	PFAS
Vials:	1	Last Edit:	10/31/2022 14:57 by DAG

Analyte	Parent	CAS Number	Concentration	Units
NEtFOSA	21J0007	4151-50-2	0.8	ug/mL
NMeFOSE	21J0014	24448-09-7	0.8	ug/mL
3:3FTCA	21L0004	113507-82-7	0.8	ug/mL
5:3FTCA	21L0005	914637-49-3	0.8	ug/mL
NEtFOSE	21L0006	1691-99-2	0.8	ug/mL
7:3FTCA	21L0007	812-70-4	0.8	ug/mL
NMeFOSA	21L0008	31506-32-8	0.8	ug/mL
NFDHA	22I0342	151772-58-6	0.4	ug/mL
PFEESA	22I0342	113507-82-7	0.356	ug/mL
PFMBA	22I0342	863090-89-5	0.4	ug/mL
PFMPA	22I0342	377-73-1	0.4	ug/mL
11CL-PF3OUDS	22I0343	763051-92-9	0.378	ug/mL
9CL-PF3ONS	22I0343	756426-58-1	0.374	ug/mL
ADONA	22I0343	919005-14-4	0.378	ug/mL
HFPO-DA	22I0343	13252-13-6	0.4	ug/mL
4:2FTS	22I0344	757124-72-4	0.75	ug/mL
6:2FTS	22I0344	27619-97-2	0.76	ug/mL
8:2FTS	22I0344	39108-34-4	0.768	ug/mL
NEtFOSAA	22I0344	2991-50-6	0.2	ug/mL
NMeFOSAA	22I0344	2355-31-9	0.2	ug/mL
PFBA	22I0344	375-22-4	0.8	ug/mL
PFBS	22I0344	375-73-5	0.177	ug/mL
PFDA	22I0344	335-76-2	0.2	ug/mL
PFDOA	22I0344	307-55-1	0.2	ug/mL
PFDOS	22I0344	79780-39-5	0.194	ug/mL
PFDS	22I0344	335-77-3	0.193	ug/mL
PFHPA	22I0344	375-85-9	0.2	ug/mL
PFHPS	22I0344	375-92-8	0.191	ug/mL
PFHXA	22I0344	307-24-4	0.2	ug/mL
PFHXS	22I0344	355-46-4	0.183	ug/mL
PFNA	22I0344	375-95-1	0.2	ug/mL
PFNS	22I0344	68259-12-1	0.192	ug/mL
PFOA	22I0344	335-67-1	0.2	ug/mL
PFOS	22I0344	1763-23-1	0.186	ug/mL
PFOSA	22I0344	754-91-6	0.2	ug/mL
PFPEA	22I0344	2706-90-3	0.4	ug/mL
PFPES	22I0344	630402-22-1	0.188	ug/mL
PFTEDA	22I0344	376-06-7	0.2	ug/mL
PFTRDA	22I0344	72629-94-8	0.2	ug/mL
PFUnA	22I0344	2058-94-8	0.2	ug/mL

Reviewed By

Date

Analytical Standard Record

22J0552

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
21J0007	PFAS - SAS N-EtFOSA 50ug/mL	08/12/2021	Wellington Laboratories	NEtFOSA0821M	08/12/2026	10/31/2022 14:36	by DAG	0.096
21J0014	PFAS - SAS N-MeFOSE 50ug/mL	09/22/2021	Wellington Laboratories	NMeFOSE0921M	09/23/2026	10/31/2022 14:35	by DAG	0.096
21L0004	PFAS - SAS 3:3FTA 50ug/mL	12/07/2021	Wellington Laboratories	FPrPA1020	11/12/2025	10/31/2022 14:39	by DAG	0.096
21L0005	PFAS - SAS 5:3FTA 50ug/mL	12/07/2021	Wellington Laboratories	FPePA1120	11/11/2025	10/31/2022 14:41	by DAG	0.096
21L0006	PFAS - SAS EtFOSE 50ug/mL	12/07/2021	Wellington Laboratories	FPePA1120	09/23/2026	10/31/2022 14:41	by DAG	0.096
21L0007	PFAS - SAS 7:3FTA 50ug/mL	12/07/2021	Wellington Laboratories	FHpPA1020	11/12/2025	10/31/2022 14:42	by DAG	0.096
21L0008	PFAS - SAS N-MeFOSA 50ug/mL	12/07/2021	Wellington Laboratories	NMeFOSA0721M	08/03/2026	10/31/2022 14:42	by DAG	0.096
22I0342	PFAS - MIX MXG 2ug/mL	02/07/2022	Wellington Laboratories	PFACMXG0222	02/22/2027	10/31/2022 14:48	by DAG	1.2
22I0343	PFAS - MIX MXF 2ug/mL	01/10/2022	Wellington Laboratories	PFACMXF0122	01/11/2025	10/31/2022 14:55	by DAG	1.2
22I0344	PFAS - MIX MXH 1-4ug/mL	08/05/2022	Wellington Laboratories	PFACMXH0822	08/08/2027	10/31/2022 14:56	by DAG	1.2

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

MPFAC-HIF-ES

Mass-Labelled PFAS Extraction Standard Solution/Mixture

PRODUCT CODE:	MPFAC-HIF-ES
LOT NUMBER:	MPFACHIFES0822
SOLVENT(S):	Methanol/Isopropanol (1%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	07/20/2022
LAST TESTED: (mm/dd/yyyy)	08/02/2022
EXPIRY DATE: (mm/dd/yyyy)	08/02/2025
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	17
Perfluoro-n-(1,2-$^{13}C_2$)dodecanoic acid	MPFDoA	250	19
Perfluoro-n-(1,2-$^{13}C_2$)tetradecanoic acid	M2PFTeDA	250	23
Perfluoro-1-($^{13}C_8$)octanesulfonamide	M8FOSA	500	18
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	22
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:** 08/02/2022 (mm/dd/yyyy)

B.G. Chittim, General Manager

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

22L0254

Description:	MPFAC-HIF-ES-EIS	Expires:	11/23/2025
Standard Type:	Other	Prepared:	10/28/2022
Solvent:	meoh	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/13/2022 17:14 by DAG

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

Reviewed By

Date

Analytical Standard Record

22L0357

Description:	MPFAC-HIF-ES 20.0ng/mL	Expires:	06/19/2023
Standard Type:	Surrogate Spike	Prepared:	12/21/2022
Solvent:	MeOH/62244	Prepared By:	Dipti Gokal
Final Volume (mls):	10	Department:	PFAS
Vials:	1	Last Edit:	12/21/2022 10:47 by DAG
Comments:	Half the concentration of previous EIS solution used for 1633/B-15. Double the spiking volume from 100 uL to 200 uL		

Analyte	Parent	CAS Number	Concentration	Units
13C2-4:2FTS	22K0096	13C2-4:2FTS	0.04	ug/mL
13C2-6:2FTS	22K0096	13C2-6:2FTS	0.04	ug/mL
13C2-8:2FTS	22K0096	13C2-8:2FTS	0.04	ug/mL
13C2-PFDOA	22K0096	13C2-PFDOA	0.01	ug/mL
13C2-PFTEDA	22K0096	13C2-PFTEDA	0.01	ug/mL
13C3-HFPO-DA	22K0096	13C3-HFPO-DA	0.08	ug/mL
13C3-PFBS	22K0096	13C3-PFBS	0.02	ug/mL
13C3-PFHXS	22K0096	13C3-PFHXS	0.02	ug/mL
13C4-PFBA	22K0096	13C4-PFBA	0.08	ug/mL
13C4-PFHPA	22K0096	13C4-PFHPA	0.02	ug/mL
13C5-PFHXA	22K0096	13C5-PFHXA	0.02	ug/mL
13C5-PFPEA	22K0096	13C5-PFPEA	0.04	ug/mL
13C6-PFDA	22K0096	13C6-PFDA	0.01	ug/mL
13C7-PFUnA	22K0096	13C7-PFUDA	0.01	ug/mL
13C8-PFOA	22K0096	13C8-PFOA	0.02	ug/mL
13C8-PFOS	22K0096	13C8-PFOS	0.02	ug/mL
13C8-PFOSA	22K0096	13C8-PFOSA	0.02	ug/mL
13C9-PFNA	22K0096	13C9-PFNA	0.01	ug/mL
D3-NMEFOSA	22K0096	D3-NMEFOSA	0.02	ug/mL
D3-NMEFOSAA	22K0096	D3-NMEFOSAA	0.04	ug/mL
D5-NETFOSA	22K0096	D5-NETFOSA	0.02	ug/mL
D5-NETFOSAA	22K0096	D5-NETFOSAA	0.04	ug/mL
D7-NMEFOSE	22K0096	D7-NMEFOSE	0.2	ug/mL
D9-NETFOSE	22K0096	D9-NETFOSE	0.2	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22K0096	MPFAC-HIF-ES-EIS	07/20/2022	Wellington Laboratories	MPFACHIFES0822	08/02/2025	11/04/2022 12:16	by DAG	0.4

Reviewed By

Date

Analytical Standard Record

22L0432

Description:	PFAS IIS 7C 40ng/mL	Expires:	01/20/2023
Standard Type:	Internal Standard	Prepared:	12/29/2022
Solvent:	MeOH/62286	Prepared By:	Dipti Gokal
Final Volume (mls):	25	Department:	PFAS
Vials:	1	Last Edit:	12/29/2022 09:09 by DAG

Analyte	Parent	CAS Number	Concentration	Units
13C2-PFDA	22A0234	13C2-PFDA	0.04	ug/mL
13C2-PFHXA	22A0234	13C2-PFHxA	0.04	ug/mL
13C3-PFBA	22A0234	13C3-PFBA	0.04	ug/mL
13C4-PFOA	22A0234	13C4-PFOA	0.04	ug/mL
13C4-PFOS	22A0234	13C4-PFOS	0.04	ug/mL
13C5-PFNA	22A0234	13C5-PFNA	0.04	ug/mL
18O2-PFHXS	22A0234	18O2-PFHXS	0.04	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0234	PFAS IIS 7C 5ug/mL	01/20/2022	In house	*	01/20/2023	01/20/2022 15:49	by HGH	0.2

Reviewed By

Date

Analytical Standard Record

22L0442

Description:	PFAS - MIX 1633 10ng/mL	Expires:	06/27/2023
Standard Type:	Analyte Spike	Prepared:	12/29/2022
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	10	Department:	PFAS
Vials:	1	Last Edit:	12/29/2022 09:41 by DAG

Analyte	Parent	CAS Number	Concentration	Units
11CL-PF3OUDS	22J0552	763051-92-9	0.0189	ug/mL
3:3FTCA	22J0552	113507-82-7	0.04	ug/mL
4:2FTS	22J0552	757124-72-4	0.0375	ug/mL
5:3FTCA	22J0552	914637-49-3	0.04	ug/mL
6:2FTS	22J0552	27619-97-2	0.038	ug/mL
7:3FTCA	22J0552	812-70-4	0.04	ug/mL
8:2FTS	22J0552	39108-34-4	0.0384	ug/mL
9CL-PF3ONS	22J0552	756426-58-1	0.0187	ug/mL
ADONA	22J0552	919005-14-4	0.0189	ug/mL
HFPO-DA	22J0552	13252-13-6	0.02	ug/mL
NEtFOSA	22J0552	4151-50-2	0.04	ug/mL
NEtFOSAA	22J0552	2991-50-6	0.01	ug/mL
NEtFOSE	22J0552	1691-99-2	0.04	ug/mL
NFDHA	22J0552	151772-58-6	0.02	ug/mL
NMeFOSA	22J0552	31506-32-8	0.04	ug/mL
NMeFOSAA	22J0552	2355-31-9	0.01	ug/mL
NMeFOSE	22J0552	24448-09-7	0.04	ug/mL
PFBA	22J0552	375-22-4	0.04	ug/mL
PFBS	22J0552	375-73-5	0.00885	ug/mL
PFDA	22J0552	335-76-2	0.01	ug/mL
PFDOA	22J0552	307-55-1	0.01	ug/mL
PFDOS	22J0552	79780-39-5	0.0097	ug/mL
PFDS	22J0552	335-77-3	0.00965	ug/mL
PFEESA	22J0552	113507-82-7	0.0178	ug/mL
PFHPA	22J0552	375-85-9	0.01	ug/mL
PFHPS	22J0552	375-92-8	0.00955	ug/mL
PFHXA	22J0552	307-24-4	0.01	ug/mL
PFHXS	22J0552	355-46-4	0.00915	ug/mL
PFMBA	22J0552	863090-89-5	0.02	ug/mL
PFMPA	22J0552	377-73-1	0.02	ug/mL
PFNA	22J0552	375-95-1	0.01	ug/mL
PFNS	22J0552	68259-12-1	0.0096	ug/mL
PFOA	22J0552	335-67-1	0.01	ug/mL
PFOS	22J0552	1763-23-1	0.0093	ug/mL
PFOSA	22J0552	754-91-6	0.01	ug/mL
PFPEA	22J0552	2706-90-3	0.02	ug/mL
PFPES	22J0552	630402-22-1	0.0094	ug/mL
PFTEDA	22J0552	376-06-7	0.01	ug/mL
PFTRDA	22J0552	72629-94-8	0.01	ug/mL
PFUnA	22J0552	2058-94-8	0.01	ug/mL

Reviewed By

Date

Analytical Standard Record

22L0442

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22J0552	PFAS - MIX 1633 200ng/mL	10/31/2022	In house	x	01/11/2025	10/31/2022 15:40	by DAG	0.5

Analytical Standard Record

23A0016

Description:	MPFAC-HIF-ES 20.0ng/mL	Expires:	07/02/2023
Standard Type:	Surrogate Spike	Prepared:	01/03/2023
Solvent:	MeOH/62244	Prepared By:	Andonios Karas
Final Volume (mls):	10	Department:	PFAS
Vials:	1	Last Edit:	01/03/2023 17:57 by ABK
Comments:	Half the concentration of previous EIS solution used for 1633/B-15. Double the spiking volume from 100 uL to 200 uL		

Analyte	Parent	CAS Number	Concentration	Units
13C2-4:2FTS	22L0254	13C2-4:2FTS	0.04	ug/mL
13C2-6:2FTS	22L0254	13C2-6:2FTS	0.04	ug/mL
13C2-8:2FTS	22L0254	13C2-8:2FTS	0.04	ug/mL
13C2-PFDOA	22L0254	13C2-PFDOA	0.01	ug/mL
13C2-PFTEDA	22L0254	13C2-PFTEDA	0.01	ug/mL
13C3-HFPO-DA	22L0254	13C3-HFPO-DA	0.08	ug/mL
13C3-PFBS	22L0254	13C3-PFBS	0.02	ug/mL
13C3-PFHXS	22L0254	13C3-PFHXS	0.02	ug/mL
13C4-PFBA	22L0254	13C4-PFBA	0.08	ug/mL
13C4-PFHPA	22L0254	13C4-PFHPA	0.02	ug/mL
13C5-PFHXA	22L0254	13C5-PFHXA	0.02	ug/mL
13C5-PFPEA	22L0254	13C5-PFPEA	0.04	ug/mL
13C6-PFDA	22L0254	13C6-PFDA	0.01	ug/mL
13C7-PFUnA	22L0254	13C7-PFUDA	0.01	ug/mL
13C8-PFOA	22L0254	13C8-PFOA	0.02	ug/mL
13C8-PFOS	22L0254	13C8-PFOS	0.02	ug/mL
13C8-PFOSA	22L0254	13C8-PFOSA	0.02	ug/mL
13C9-PFNA	22L0254	13C9-PFNA	0.01	ug/mL
D3-NMEFOSA	22L0254	D3-NMEFOSA	0.02	ug/mL
D3-NMEFOSAA	22L0254	D3-NMEFOSAA	0.04	ug/mL
D5-NETFOSA	22L0254	D5-NETFOSA	0.02	ug/mL
D5-NETFOSAA	22L0254	D5-NETFOSAA	0.04	ug/mL
D7-NMEFOSE	22L0254	D7-NMEFOSE	0.2	ug/mL
D9-NETFOSE	22L0254	D9-NETFOSE	0.2	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22L0254	MPFAC-HIF-ES-EIS	10/28/2022	Wellington Laboratories	MPFACHIFES1022	11/23/2025	12/13/2022 17:14	by DAG	0.4

Reviewed By

Date