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:

December 27, 2022

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

RE: Red Hill AFFF Assessment Sampling
22L0134

Enclosed are the results of analyses for samples received by our laboratory on 12/19/2022. 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

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

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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: 12/27/2022 16:53

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 D7-NMeFOSE and D9-NEtFOSE recovered below the lower control limit in sample 02 - AF-RHMW17D-WGN01B-2212W2.

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
22L0134-01	AF-RHMW16-WGN01B-2212W2	Water	12/16/2022 18:40	12/19/2022
22L0134-02	AF-RHMW17D-WGN01B-2212W2	Water	12/16/2022 11:05	12/19/2022
22L0134-03	AF-RHMW17D-WGN02B-2212W2	Water	12/16/2022 13:35	12/19/2022

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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: 12/27/2022 16:53

Containers Received

Lab ID	Container Type	Count	Preservation Check
22L0134-01			
	500mL P	2	
22L0134-02			
	500mL P	2	
22L0134-03			
	500mL P	2	

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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: 12/27/2022 16:53

Sample Results

Sample: AF-RHMW16-WGN01B-2212W2
22L0134-01 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	8.5		1.6	0.80	0.21	ng/L	12/22/22	1	EPA 1633	BBL0403
PFPEA	15		0.80	0.40	0.065	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHXA	2.8		0.40	0.20	0.055	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHPA	1.5		0.40	0.20	0.041	ng/L	12/22/22	1	EPA 1633	BBL0403
PFOA	0.32 J		0.40	0.20	0.15	ng/L	12/22/22	1	EPA 1633	BBL0403
PFNA	0.085 J	IR2,	0.40	0.20	0.082	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDA	0.20 U	IR2,	0.40	0.20	0.10	ng/L	12/22/22	1	EPA 1633	BBL0403
PFUnA	0.20 U	IR2,	0.40	0.20	0.16	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDOA	0.20 U		0.40	0.20	0.11	ng/L	12/22/22	1	EPA 1633	BBL0403
PFTRDA	0.30 U		0.40	0.30	0.20	ng/L	12/22/22	1	EPA 1633	BBL0403
PFTEDA	0.20 U	IR1,	0.40	0.20	0.20	ng/L	12/22/22	1	EPA 1633	BBL0403
PFBS	0.059 J		0.40	0.20	0.037	ng/L	12/22/22	1	EPA 1633	BBL0403
PFPES	0.20 U		0.40	0.20	0.063	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHXS	0.20 U		0.40	0.20	0.032	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHPS	0.20 U		0.40	0.20	0.051	ng/L	12/22/22	1	EPA 1633	BBL0403
PFOS	0.11 J	IR2,	0.40	0.20	0.064	ng/L	12/22/22	1	EPA 1633	BBL0403
PFNS	0.20 U		0.40	0.20	0.12	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDS	0.20 U		0.40	0.20	0.15	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDOS	0.20 U		0.40	0.20	0.12	ng/L	12/22/22	1	EPA 1633	BBL0403
4:2FTS	0.80 U		1.6	0.80	0.29	ng/L	12/22/22	1	EPA 1633	BBL0403
6:2FTS	22		1.6	0.80	0.31	ng/L	12/22/22	1	EPA 1633	BBL0403
8:2FTS	0.80 U		1.6	0.80	0.082	ng/L	12/22/22	1	EPA 1633	BBL0403
PFOSA	0.20 U		0.40	0.20	0.10	ng/L	12/22/22	1	EPA 1633	BBL0403
NMeFOSA	0.80 U		1.6	0.80	0.47	ng/L	12/22/22	1	EPA 1633	BBL0403
NEtFOSA	0.80 U		1.6	0.80	0.41	ng/L	12/22/22	1	EPA 1633	BBL0403
NMeFOSAA	0.20 U	IR1,	0.40	0.20	0.11	ng/L	12/22/22	1	EPA 1633	BBL0403
NEtFOSAA	0.20 U		0.40	0.20	0.11	ng/L	12/22/22	1	EPA 1633	BBL0403
NMeFOSE	1.2 U		1.6	1.2	1.0	ng/L	12/22/22	1	EPA 1633	BBL0403
NEtFOSE	1.2 U		1.6	1.2	1.0	ng/L	12/22/22	1	EPA 1633	BBL0403
HFPO-DA	0.40 U		0.80	0.40	0.17	ng/L	12/22/22	1	EPA 1633	BBL0403
ADONA	0.40 U		0.80	0.40	0.12	ng/L	12/22/22	1	EPA 1633	BBL0403
PFEESA	0.40 U		0.80	0.40	0.11	ng/L	12/22/22	1	EPA 1633	BBL0403
PFMPA	0.40 U		0.80	0.40	0.054	ng/L	12/22/22	1	EPA 1633	BBL0403
PFMBA	0.40 U		0.80	0.40	0.091	ng/L	12/22/22	1	EPA 1633	BBL0403
NFDHA	0.40 U		0.80	0.40	0.30	ng/L	12/22/22	1	EPA 1633	BBL0403
9CL-PF3ONS	0.40 U		0.80	0.40	0.21	ng/L	12/22/22	1	EPA 1633	BBL0403
11CL-PF3OUDS	0.40 U		0.80	0.40	0.21	ng/L	12/22/22	1	EPA 1633	BBL0403
3:3FTCA	0.80 U		1.6	0.80	0.58	ng/L	12/22/22	1	EPA 1633	BBL0403
5:3FTCA	0.80 U	IR2,	1.6	0.80	0.44	ng/L	12/22/22	1	EPA 1633	BBL0403
7:3FTCA	0.80 U		1.6	0.80	0.55	ng/L	12/22/22	1	EPA 1633	BBL0403
Surrogate: 13C4-PFBA	*86.2%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C5-PFPEA	*103%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C5-PFHXA	*102%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C4-PFHPA	*102%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C8-PFOA	*101%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*

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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: 12/27/2022 16:53

Sample Results

(Continued)

Sample: AF-RHMW16-WGN01B-2212W2 (Continued)

22L0134-01 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*92.4%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C6-PFDA	*104%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C7-PFUnA	*88.0%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-PFDOA	*83.4%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-PFTEDA	*78.4%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C3-PFBS	*87.8%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C3-PFHXS	*93.9%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C8-PFOS	*81.2%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-4:2FTS	*146%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-6:2FTS	*145%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-8:2FTS	*161%*	*S2*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-8:2FTS	*104%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: 13C8-PFOSA	*54.1%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D5-NETFOSA	*24.5%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D3-NMEFOSA	*25.3%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D3-NMEFOSAA	*92.7%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D5-NETFOSAA	*93.0%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D7-NMEFOSE	*32.2%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D9-NETFOSE	*26.1%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C3-HFPO-DA	*84.4%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*

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1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 12/27/2022 16:53

Sample Results

(Continued)

Sample: AF-RHMW17D-WGN01B-2212W2
22L0134-02 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.78 U		1.6	0.78	0.20	ng/L	12/22/22	1	EPA 1633	BBL0403
PFPEA	0.94		0.78	0.39	0.063	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHXA	1.6		0.39	0.20	0.054	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHPA	0.29 J		0.39	0.20	0.040	ng/L	12/22/22	1	EPA 1633	BBL0403
PFOA	0.79		0.39	0.20	0.15	ng/L	12/22/22	1	EPA 1633	BBL0403
PFNA	0.33 J		0.39	0.20	0.080	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDA	0.43		0.39	0.20	0.099	ng/L	12/22/22	1	EPA 1633	BBL0403
PFUnA	0.20 U	IR2,	0.39	0.20	0.16	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDOA	0.27 J		0.39	0.20	0.11	ng/L	12/22/22	1	EPA 1633	BBL0403
PFTRDA	0.29 U		0.39	0.29	0.20	ng/L	12/22/22	1	EPA 1633	BBL0403
PFTEDA	0.23 J		0.39	0.20	0.19	ng/L	12/22/22	1	EPA 1633	BBL0403
PFBS	0.16 J		0.39	0.20	0.036	ng/L	12/22/22	1	EPA 1633	BBL0403
PFPES	0.20 U		0.39	0.20	0.061	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHXS	0.15 J		0.39	0.20	0.031	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHPS	0.20 U		0.39	0.20	0.050	ng/L	12/22/22	1	EPA 1633	BBL0403
PFOS	1.1		0.39	0.20	0.062	ng/L	12/22/22	1	EPA 1633	BBL0403
PFNS	0.20 U		0.39	0.20	0.12	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDS	0.20 U		0.39	0.20	0.15	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDOS	0.20 U		0.39	0.20	0.12	ng/L	12/22/22	1	EPA 1633	BBL0403
4:2FTS	0.78 U		1.6	0.78	0.28	ng/L	12/22/22	1	EPA 1633	BBL0403
6:2FTS	120		1.6	0.78	0.31	ng/L	12/22/22	1	EPA 1633	BBL0403
8:2FTS	0.78 U		1.6	0.78	0.080	ng/L	12/22/22	1	EPA 1633	BBL0403
PFOSA	0.11 J		0.39	0.20	0.10	ng/L	12/22/22	1	EPA 1633	BBL0403
NMeFOSA	0.78 U		1.6	0.78	0.46	ng/L	12/22/22	1	EPA 1633	BBL0403
NEtFOSA	0.78 U		1.6	0.78	0.40	ng/L	12/22/22	1	EPA 1633	BBL0403
NMeFOSAA	0.20 U		0.39	0.20	0.10	ng/L	12/22/22	1	EPA 1633	BBL0403
NEtFOSAA	0.20 U		0.39	0.20	0.11	ng/L	12/22/22	1	EPA 1633	BBL0403
NMeFOSE	1.2 U		1.6	1.2	0.99	ng/L	12/22/22	1	EPA 1633	BBL0403
NEtFOSE	1.2 U		1.6	1.2	1.0	ng/L	12/22/22	1	EPA 1633	BBL0403
HFPO-DA	0.39 U		0.78	0.39	0.17	ng/L	12/22/22	1	EPA 1633	BBL0403
ADONA	0.39 U		0.78	0.39	0.12	ng/L	12/22/22	1	EPA 1633	BBL0403
PFEESA	0.39 U		0.78	0.39	0.11	ng/L	12/22/22	1	EPA 1633	BBL0403
PFMPA	0.39 U		0.78	0.39	0.053	ng/L	12/22/22	1	EPA 1633	BBL0403
PFMBA	0.39 U		0.78	0.39	0.089	ng/L	12/22/22	1	EPA 1633	BBL0403
NFDHA	0.39 U		0.78	0.39	0.29	ng/L	12/22/22	1	EPA 1633	BBL0403
9CL-PF3ONS	0.39 U		0.78	0.39	0.20	ng/L	12/22/22	1	EPA 1633	BBL0403
11CL-PF3OUDS	0.39 U		0.78	0.39	0.20	ng/L	12/22/22	1	EPA 1633	BBL0403
3:3FTCA	0.78 U		1.6	0.78	0.56	ng/L	12/22/22	1	EPA 1633	BBL0403
5:3FTCA	0.78 U		1.6	0.78	0.43	ng/L	12/22/22	1	EPA 1633	BBL0403
7:3FTCA	0.78 U		1.6	0.78	0.54	ng/L	12/22/22	1	EPA 1633	BBL0403
Surrogate: 13C4-PFBA	*21.7%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C5-PFPEA	*79.0%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C5-PFHXA	*85.3%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C4-PFHPA	*94.2%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C8-PFOA	*82.7%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*

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1001 Bishop Street, Suite 1600	Project Number: Red Hill AFFF Assessment Sampling	
Honolulu, HI 96813	Project Manager: Watson Tanji	Reported: 12/27/2022 16:53

Sample Results
(Continued)

Sample: AF-RHMW17D-WGN01B-2212W2 (Continued)
22L0134-02 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*92.0%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C6-PFDA	*84.2%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C7-PFUnA	*72.5%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-PFDOA	*43.4%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-PFTEDA	*29.2%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C3-PFBS	*98.0%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C3-PFHXS	*89.6%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C8-PFOS	*88.6%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-4:2FTS	*202%*	*S2*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-4:2FTS	*100%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: 13C2-6:2FTS	*242%*	*S2*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-6:2FTS	*116%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: 13C2-8:2FTS	*161%*	*S2*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-8:2FTS	*109%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: 13C8-PFOSA	*49.9%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D5-NETFOSA	*19.4%*	*S1*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D5-NETFOSA	*25.0%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: D3-NMEFOSA	*19.5%*	*S1*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D3-NMEFOSA	*32.0%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: D3-NMEFOSAA	*68.6%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D5-NETFOSAA	*118%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D7-NMEFOSE	*19.2%*	*S1*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D7-NMEFOSE	*19.7%*	*S1*		*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: D9-NETFOSE	*13.1%*	*S1*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D9-NETFOSE	*17.8%*	*S1*		*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: 13C3-HFPO-DA	*73.9%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*

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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: 12/27/2022 16:53

Sample Results

(Continued)

Sample: AF-RHMW17D-WGN02B-2212W2
22L0134-03 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.76 U		1.5	0.76	0.20	ng/L	12/22/22	1	EPA 1633	BBL0403
PFPEA	0.70 J		0.76	0.38	0.062	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHXA	0.83	IR2	0.38	0.19	0.052	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHPA	0.20 J		0.38	0.19	0.039	ng/L	12/22/22	1	EPA 1633	BBL0403
PFOA	0.36 J		0.38	0.19	0.15	ng/L	12/22/22	1	EPA 1633	BBL0403
PFNA	0.14 J	IR2,	0.38	0.19	0.078	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDA	0.16 J	IR1,	0.38	0.19	0.097	ng/L	12/22/22	1	EPA 1633	BBL0403
PFUnA	0.19 U	IR2,	0.38	0.19	0.15	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDOA	0.19 U	IR2,	0.38	0.19	0.11	ng/L	12/22/22	1	EPA 1633	BBL0403
PFTRDA	0.29 U		0.38	0.29	0.19	ng/L	12/22/22	1	EPA 1633	BBL0403
PFTEDA	0.19 U		0.38	0.19	0.19	ng/L	12/22/22	1	EPA 1633	BBL0403
PFBS	0.11 J		0.38	0.19	0.035	ng/L	12/22/22	1	EPA 1633	BBL0403
PFPES	0.19 U		0.38	0.19	0.060	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHXS	0.091 J		0.38	0.19	0.030	ng/L	12/22/22	1	EPA 1633	BBL0403
PFHPS	0.19 U		0.38	0.19	0.049	ng/L	12/22/22	1	EPA 1633	BBL0403
PFOS	0.53		0.38	0.19	0.061	ng/L	12/22/22	1	EPA 1633	BBL0403
PFNS	0.19 U		0.38	0.19	0.12	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDS	0.19 U		0.38	0.19	0.14	ng/L	12/22/22	1	EPA 1633	BBL0403
PFDOS	0.19 U		0.38	0.19	0.12	ng/L	12/22/22	1	EPA 1633	BBL0403
4:2FTS	0.76 U		1.5	0.76	0.28	ng/L	12/22/22	1	EPA 1633	BBL0403
6:2FTS	54		1.5	0.76	0.30	ng/L	12/22/22	1	EPA 1633	BBL0403
8:2FTS	0.76 U		1.5	0.76	0.078	ng/L	12/22/22	1	EPA 1633	BBL0403
PFOSA	0.19 U		0.38	0.19	0.10	ng/L	12/22/22	1	EPA 1633	BBL0403
NMeFOSA	0.76 U		1.5	0.76	0.45	ng/L	12/22/22	1	EPA 1633	BBL0403
NEtFOSA	0.76 U		1.5	0.76	0.39	ng/L	12/22/22	1	EPA 1633	BBL0403
NMeFOSAA	0.19 U		0.38	0.19	0.10	ng/L	12/22/22	1	EPA 1633	BBL0403
NEtFOSAA	0.19 U		0.38	0.19	0.11	ng/L	12/22/22	1	EPA 1633	BBL0403
NMeFOSE	1.1 U		1.5	1.1	0.97	ng/L	12/22/22	1	EPA 1633	BBL0403
NEtFOSE	1.1 U		1.5	1.1	1.0	ng/L	12/22/22	1	EPA 1633	BBL0403
HFPO-DA	0.38 U		0.76	0.38	0.17	ng/L	12/22/22	1	EPA 1633	BBL0403
ADONA	0.38 U		0.76	0.38	0.12	ng/L	12/22/22	1	EPA 1633	BBL0403
PFEESA	0.38 U		0.76	0.38	0.10	ng/L	12/22/22	1	EPA 1633	BBL0403
PFMPA	0.38 U		0.76	0.38	0.052	ng/L	12/22/22	1	EPA 1633	BBL0403
PFMBA	0.38 U		0.76	0.38	0.087	ng/L	12/22/22	1	EPA 1633	BBL0403
NFDHA	0.38 U		0.76	0.38	0.29	ng/L	12/22/22	1	EPA 1633	BBL0403
9CL-PF3ONS	0.38 U		0.76	0.38	0.20	ng/L	12/22/22	1	EPA 1633	BBL0403
11CL-PF3OUDS	0.38 U		0.76	0.38	0.20	ng/L	12/22/22	1	EPA 1633	BBL0403
3:3FTCA	0.76 U		1.5	0.76	0.55	ng/L	12/22/22	1	EPA 1633	BBL0403
5:3FTCA	0.76 U		1.5	0.76	0.42	ng/L	12/22/22	1	EPA 1633	BBL0403
7:3FTCA	0.76 U		1.5	0.76	0.53	ng/L	12/22/22	1	EPA 1633	BBL0403
Surrogate: 13C4-PFBA	*58.6%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C5-PFPEA	*92.9%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C5-PFHXA	*90.7%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C4-PFHPA	*94.4%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C8-PFOA	*92.1%*		*20-150*				*12/22/22*	1	*EPA 1633*	*BBL0403*

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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: 12/27/2022 16:53

Sample Results
(Continued)

Sample: AF-RHMW17D-WGN02B-2212W2 (Continued)
22L0134-03 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result	/Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C9-PFNA	*90.2%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C6-PFDA	*80.7%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C7-PFUnA	*120%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-PFDOA	*95.1%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-PFTEDA	*94.4%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C3-PFBS	*103%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C3-PFHXS	*90.2%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C8-PFOS	*95.7%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-4:2FTS	*232%*	*S2*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-4:2FTS	*101%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: 13C2-6:2FTS	*211%*	*S2*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-6:2FTS	*102%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: 13C2-8:2FTS	*173%*	*S2*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C2-8:2FTS	*109%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: 13C8-PFOSA	*75.8%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D5-NETFOSA	*53.0%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D3-NMEFOSA	*44.1%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D3-NMEFOSAA	*89.9%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D5-NETFOSAA	*174%*	*S2*		*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D5-NETFOSAA	*147%*			*20-150*			*12/22/22*	10	*EPA 1633*	*BBL0403*
Surrogate: D7-NMEFOSE	*66.5%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: D9-NETFOSE	*47.6%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*
Surrogate: 13C3-HFPO-DA	*81.5%*			*20-150*			*12/22/22*	1	*EPA 1633*	*BBL0403*

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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: 12/27/2022 16:53

Quality Control

Per- and Polyfluoroalkyl Substances

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBL0403 - 1633										
Blank (BBL0403-BLK1)										
	ng/L									
PFBA	0.80 U	1.6	0.80	0.21						
PFPEA	0.40 U	0.80	0.40	0.065						
PFHXA	0.20 U	0.40	0.20	0.055						
PFHPA	0.20 U	0.40	0.20	0.041						
PFOA	0.20 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	0.0863 J	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	*30.3*				*32.0*		*94.6*	*20-150*		
13C5-PFPEA	*15.1*				*16.0*		*94.3*	*20-150*		
13C5-PFHXA	*7.37*				*8.00*		*92.2*	*20-150*		
13C4-PFHPA	*7.26*				*8.00*		*90.7*	*20-150*		
13C8-PFOA	*7.70*				*8.00*		*96.2*	*20-150*		

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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: 12/27/2022 16:53

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: BBL0403 - 1633 (Continued)										
Blank (BBL0403-BLK1)							Prepared: 12/20/22 15:01 Analyzed: 12/22/22 15:02			
	ng/L									
Surrogates										
13C9-PFNA	*3.84*				*4.00*		*96.0*	*20-150*		
13C6-PFDA	*3.59*				*4.00*		*89.8*	*20-150*		
13C7-PFUnA	*3.67*				*4.00*		*91.8*	*20-150*		
13C2-PFDOA	*4.25*				*4.00*		*106*	*20-150*		
13C2-PFTEDA	*3.12*				*4.00*		*78.0*	*20-150*		
13C3-PFBS	*6.90*				*8.00*		*86.3*	*20-150*		
13C3-PFHXS	*7.18*				*8.00*		*89.7*	*20-150*		
13C8-PFOS	*6.91*				*8.00*		*86.4*	*20-150*		
13C2-4:2FTS	*14.3*				*16.0*		*89.3*	*20-150*		
13C2-6:2FTS	*17.7*				*16.0*		*111*	*20-150*		
13C2-8:2FTS	*14.0*				*16.0*		*87.3*	*20-150*		
13C8-PFOSA	*6.46*				*8.00*		*80.7*	*20-150*		
D5-NETFOSA	*2.54*				*8.00*		*31.7*	*20-150*		
D3-NMEFOSA	*3.05*				*8.00*		*38.2*	*20-150*		
D3-NMEFOSAA	*11.8*				*16.0*		*73.5*	*20-150*		
D5-NETFOSAA	*13.2*				*16.0*		*82.3*	*20-150*		
D7-NMEFOSE	*47.7*				*80.0*		*59.6*	*20-150*		
D9-NETFOSE	*47.9*				*80.0*		*59.9*	*20-150*		
13C3-HFPO-DA	*28.5*				*32.0*		*89.1*	*20-150*		
LCS (BBL0403-BS1)							Prepared: 12/20/22 15:01 Analyzed: 12/22/22 15:15			
	ng/L									
PFBA	16.1				16.0		101	40-150		
PFPEA	7.93				8.00		99.1	40-150		
PFHXA	4.27				4.00		107	40-150		
PFHPA	3.87				4.00		96.8	40-150		
PFOA	3.50				4.00		87.6	40-150		
PFNA	3.90				4.00		97.5	40-150		
PFDA	4.33				4.00		108	40-150		
PFUnA	4.74				4.00		119	40-150		
PFDOA	3.75				4.00		93.8	40-150		
PFTRDA	3.68				4.00		92.0	40-150		
PFTEDA	4.31				4.00		108	40-150		
PFBS	3.64				3.54		103	40-150		
PFPES	3.56				3.76		94.6	40-150		
PFHXS	3.53				3.66		96.5	40-150		
PFHPS	3.57				3.82		93.4	40-150		
PFOS	3.24				3.72		87.1	40-150		
PFNS	3.62				3.84		94.4	40-150		
PFDS	3.46				3.86		89.5	40-150		
PFDOS	3.24				3.88		83.4	40-150		
4:2FTS	13.2				15.0		87.8	40-150		
6:2FTS	15.2				15.2		99.7	40-150		
8:2FTS	14.7				15.4		95.7	40-150		
PFOSA	3.46				4.00		86.6	40-150		

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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: 12/27/2022 16:53

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: BBL0403 - 1633 (Continued)										
LCS (BBL0403-BS1)						Prepared: 12/20/22 15:01		Analyzed: 12/22/22 15:15		
	ng/L									
NMeFOSA	18.4				16.0		115	40-150		
NEtFOSA	16.9				16.0		106	40-150		
NMeFOSAA	3.87				4.00		96.7	40-150		
NEtFOSAA	3.84				4.00		96.0	40-150		
NMeFOSE	17.8				16.0		111	40-150		
NEtFOSE	15.8				16.0		98.7	40-150		
HFPO-DA	7.61				8.00		95.1	40-150		
ADONA	7.89				7.56		104	40-150		
PFEESA	7.00				7.12		98.3	40-150		
PFMPA	8.31				8.00		104	40-150		
PFMBA	7.54				8.00		94.3	40-150		
NFDHA	8.29				8.00		104	40-150		
9CL-PF3ONS	6.81				7.48		91.0	40-150		
11CL-PF3OUDS	7.94				7.56		105	40-150		
3:3FTCA	17.4				16.0		109	40-150		
5:3FTCA	17.2				16.0		108	40-150		
7:3FTCA	17.9				16.0		112	40-150		
Surrogates										
13C4-PFBA	*31.0*				*32.0*		*97.0*	*20-150*		
13C5-PFPEA	*17.4*				*16.0*		*109*	*20-150*		
13C5-PFHXA	*7.89*				*8.00*		*98.6*	*20-150*		
13C4-PFHPA	*8.58*				*8.00*		*107*	*20-150*		
13C8-PFOA	*7.77*				*8.00*		*97.1*	*20-150*		
13C9-PFNA	*3.93*				*4.00*		*98.3*	*20-150*		
13C6-PFDA	*2.96*				*4.00*		*74.0*	*20-150*		
13C7-PFUnA	*2.87*				*4.00*		*71.8*	*20-150*		
13C2-PFDOA	*2.99*				*4.00*		*74.6*	*20-150*		
13C2-PFTEDA	*2.92*				*4.00*		*73.1*	*20-150*		
13C3-PFBS	*7.04*				*8.00*		*88.0*	*20-150*		
13C3-PFHXS	*7.63*				*8.00*		*95.3*	*20-150*		
13C8-PFOS	*7.64*				*8.00*		*95.5*	*20-150*		
13C2-4:2FTS	*13.6*				*16.0*		*85.2*	*20-150*		
13C2-6:2FTS	*14.3*				*16.0*		*89.2*	*20-150*		
13C2-8:2FTS	*14.2*				*16.0*		*88.4*	*20-150*		
13C8-PFOSA	*6.73*				*8.00*		*84.2*	*20-150*		
D5-NETFOSA	*2.04*				*8.00*		*25.5*	*20-150*		
D3-NMEFOSA	*2.24*				*8.00*		*28.0*	*20-150*		
D3-NMEFOSAA	*13.8*				*16.0*		*86.5*	*20-150*		
D5-NETFOSAA	*13.3*				*16.0*		*83.3*	*20-150*		
D7-NMEFOSE	*36.0*				*80.0*		*45.0*	*20-150*		
D9-NETFOSE	*38.6*				*80.0*		*48.2*	*20-150*		
13C3-HFPO-DA	*32.6*				*32.0*		*102*	*20-150*		

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

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: 12/27/2022 16:53

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: BBL0403 - 1633 (Continued)										
MRL Check (BBL0403-MRL1)						Prepared: 12/20/22 15:01 Analyzed: 12/22/22 15:28				
	ng/L									
PFBA	1.51 J				1.60		94.6	40-150		
PFPEA	0.801				0.800		100	40-150		
PFHXA	0.370 J				0.400		92.6	40-150		
PFHPA	0.350 J				0.400		87.6	40-150		
PFOA	0.403				0.400		101	40-150		
PFNA	0.333 J				0.400		83.2	40-150		
PFDA	0.274 J				0.400		68.5	40-150		
PFUnA	0.345 J				0.400		86.3	40-150		
PFDOA	0.342 J				0.400		85.6	40-150		
PFTRDA	0.378 J IR1,				0.400		94.6	40-150		
PFTEDA	0.329 J IR2,				0.400		82.2	40-150		
PFBS	0.328 J				0.354		92.6	40-150		
PFPES	0.341 J				0.376		90.8	40-150		
PFHXS	0.355 J				0.366		96.9	40-150		
PFHPS	0.358 J				0.382		93.7	40-150		
PFOS	0.401				0.372		108	40-150		
PFNS	0.321 J				0.384		83.5	40-150		
PFDS	0.394 J				0.386		102	40-150		
PFDOS	0.382 J				0.388		98.6	40-150		
4:2FTS	1.43 J				1.50		95.6	40-150		
6:2FTS	1.31 J				1.52		86.0	40-150		
8:2FTS	1.16 J				1.54		75.5	40-150		
PFOSA	0.425				0.400		106	40-150		
NMeFOSA	1.69				1.60		106	40-150		
NEtFOSA	1.38 J				1.60		86.2	40-150		
NMeFOSAA	0.457				0.400		114	40-150		
NEtFOSAA	0.354 J				0.400		88.5	40-150		
NMeFOSE	1.40 J				1.60		87.7	40-150		
NEtFOSE	1.25 J				1.60		77.9	40-150		
HFPO-DA	0.686 J				0.800		85.7	40-150		
ADONA	0.768 J				0.756		102	40-150		
PFEESA	0.627 J				0.712		88.0	40-150		
PFMPA	0.784 J				0.800		98.0	40-150		
PFMBA	0.680 J				0.800		85.1	40-150		
NFDHA	0.877				0.800		110	40-150		
9CL-PF3ONS	0.598 J				0.748		80.0	40-150		
11CL-PF3OUDS	0.811				0.756		107	40-150		
3:3FTCA	1.35 J				1.60		84.4	40-150		
5:3FTCA	1.88				1.60		117	40-150		
7:3FTCA	1.79				1.60		112	40-150		
Surrogates										
13C4-PFBA	*30.7*				*32.0*		*95.9*	*20-150*		
13C5-PFPEA	*16.3*				*16.0*		*102*	*20-150*		
13C5-PFHXA	*7.09*				*8.00*		*88.6*	*20-150*		
13C4-PFHPA	*8.60*				*8.00*		*108*	*20-150*		
13C8-PFOA	*8.68*				*8.00*		*108*	*20-150*		

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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: 12/27/2022 16:53

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: BBL0403 - 1633 (Continued)										
MRL Check (BBL0403-MRL1)						Prepared: 12/20/22 15:01 Analyzed: 12/22/22 15:28				
	ng/L									
Surrogates										
13C9-PFNA	*4.06*				*4.00*		*102*	*20-150*		
13C6-PFDA	*3.89*				*4.00*		*97.4*	*20-150*		
13C7-PFUnA	*3.50*				*4.00*		*87.5*	*20-150*		
13C2-PFDOA	*3.76*				*4.00*		*93.9*	*20-150*		
13C2-PFTEDA	*4.09*				*4.00*		*102*	*20-150*		
13C3-PFBS	*6.76*				*8.00*		*84.5*	*20-150*		
13C3-PFHXS	*7.20*				*8.00*		*90.1*	*20-150*		
13C8-PFOS	*7.23*				*8.00*		*90.4*	*20-150*		
13C2-4:2FTS	*13.4*				*16.0*		*83.8*	*20-150*		
13C2-6:2FTS	*15.2*				*16.0*		*95.2*	*20-150*		
13C2-8:2FTS	*11.9*				*16.0*		*74.1*	*20-150*		
13C8-PFOSA	*4.75*				*8.00*		*59.4*	*20-150*		
D5-NETFOSA	*1.61*				*8.00*		*20.1*	*20-150*		
D3-NMEFOSA	*1.92*				*8.00*		*23.9*	*20-150*		
D3-NMEFOSAA	*11.5*				*16.0*		*71.7*	*20-150*		
D5-NETFOSAA	*13.8*				*16.0*		*86.1*	*20-150*		
D7-NMEFOSE	*26.8*				*80.0*		*33.6*	*20-150*		
D9-NETFOSE	*26.4*				*80.0*		*33.0*	*20-150*		
13C3-HFPO-DA	*31.8*				*32.0*		*99.4*	*20-150*		

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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: 12/27/2022 16:53

Notes and Definitions

Item	Definition
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
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.

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

WORK ORDER

22L0134

Printed: 12/27/2022 4:53 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: 12/19/2022 05:40 PM
Date Due: 12/29/2022 (5.00 day TAT)

Logged In By: Megan Salata
Received By: Melody Horton

Analysis		Comments
22L0134-01 AF-RHMW16-WGN01B-2212W2 [Water] Sampled 12/16/2022 6:40:00PM		
1633	NONE	"Report relevant surrogates"
22L0134-02 AF-RHMW17D-WGN01B-2212W2 [Water] Sampled 12/16/2022 11:05:00AM		
1633	NONE	"Report relevant surrogates"
22L0134-03 AF-RHMW17D-WGN02B-2212W2 [Water] Sampled 12/16/2022 1:35:00PM		
1633	NONE	"Report relevant surrogates"

22L0134 **Sample Receipt Log**

Default Cooler

Samples Received at: **6.5°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

United Cargo: 016-79088866 22L0134

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. 02-221216-23 F0104-APL

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

Project Name/Number	Sampler (Print)	Purchase Order Number	Sampler (Signature)
CTO N6274223F0104 / 60697810	Jackyn Vo		AECOM 12/16/22

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-RHMW16-WGN01B-2212W2	RHMW16	12/16/22	1840	HST	2	✔			✔

Date Shipped:
Carrier:
Waybill No.:
Comments:
~~Store ALL samples until notified by client to dispose~~ 12/16/22

Shuttle Temperature: IRB: 9.5/6.5°C

Turnaround Requested: Check one
☐ Standard 2-3 wk ☑ ~~One week~~ 4 Days ☐ 3 days ☐ 24/48 Hrs. ☑ Other: 5 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:
Jackyn Vo AECOM	12/16/22	~~1925~~ ~~1920~~	Miranda DeSarmo	Miranda DeSarmo	12/16/22 ~~1930~~	1930	
Relinquished by:	Date	Time	Received by:	Relinquished by:	Date	Time	Received at lab by:
					12.19.22	1740	Melody Horton

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

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united cargo: 016-79088866

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. 01-221216-23F0104-APL

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

Project Name/Number	Sampler (Print)	Purchase Order Number	Sampler (Signature)
CTO N6274223F0104 / 60697810	Jacklyn Vo		12/16/22

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-WGN01B-2212W2	RHMW17D	12/16/22	1105	HST	2	✓			✓
AF-RHMW17D-WGN02B-2212W2	RHMW17D	12/16/22	1335	HST	2	✓			✓

MD 12/16/22

MD 12/16/22

Date Shipped:
Carrier:
Waybill No.:
Comments:

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:
Jacklyn Vo AECOM	12/16/22	1630	Miranda DeSarmo	Miranda DeSarmo	12/16/22	1930	
Relinquished by:	**Date**	**Time**	**Received by:**	**Relinquished by:**	**Date**	**Time**	**Received at lab by:**
					12.19.22	1740	Melody Horton

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

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K VH

UNITED CARGO | QuickPak

232 S Wacker Dr • Chicago, IL 60606
For domestic service
1-800-UA-CARGO
unitedcargo.com

Carrier	Origin	Air waybill number	Date of departure	Final dest.
016	HONOLULU	016-79088866	12/16/22	FAT

Routing: ETD 2330 | 1st flight #/city 396 | 2nd flight #/city 5299 | 3rd flight #/city | ETA 0621 | First bag tag number | Last bag tag number

From
SHIPPERS NAME: AECOM
Shipper's reference #: 60697810.00.30.01
COMPANY NAME: AECOM
Telephone: (714) 801-2829
STREET ADDRESS: 1001 Bishop St Suite 1600
CITY: Honolulu STATE: HI ZIP: 96813

To
CONSIGNEE'S NAME: APPL
COMPANY NAME: APPL Inc
Telephone: (559) 275-2175
STREET ADDRESS: 908 N. Temperance Ave
CITY: Clovis STATE: CA ZIP: 93611

No. of pieces	Weight/lbs.	Description	Declared value
	1-25		
	26-50		
	51-75	Water Samplers	
	76-100		
Total 1	21	Handling information/LifeGuard	

Hold & not | Rate class (SCR)

Third party
Name | Account #

It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage. Both Shipper and Consignee agree that the shipments described herein are subject to governing rates, rules and classifications stated in United Airlines current tariffs and conditions of contract as found on www.unitedcargo.com and are thereby incorporated into and made part of this contract. In addition, any Customer Contract applies.

Signature _____

Signature of Shipper or Agent above and initial applicable box below

☒ This shipment does not contain dangerous goods ☐ This shipment does contain dangerous goods

Origin station code/location by: HNL | UA agent (full name): JWard | Date: 12/16 | Time: 2010

Form of payment

☐ Credit card Type Exp. date
☐ Comat ☐ GBL Fill in GBL number below ☑ Bill customer acct. no. fill in account no. below
7230075 00 12

Received in good order and condition

Consignee signature _____

Date | Time

Destination station code/location by | UA agent (full name) | Date | Time

Weight charge	
Valuation charge	
Fuel	
Freight processing fee MC	
Taxes	
Other	
Total	

CGOAC22QP-NONUMBER (Rev. 01/20)
Part1 Shipper, Part2 Delivery, Part3 Consignee, Part4 Destination Airport, Part5 Carrier, Part6 Airport of Origin 016-79088866

AECOM
UA9016903553
FAT

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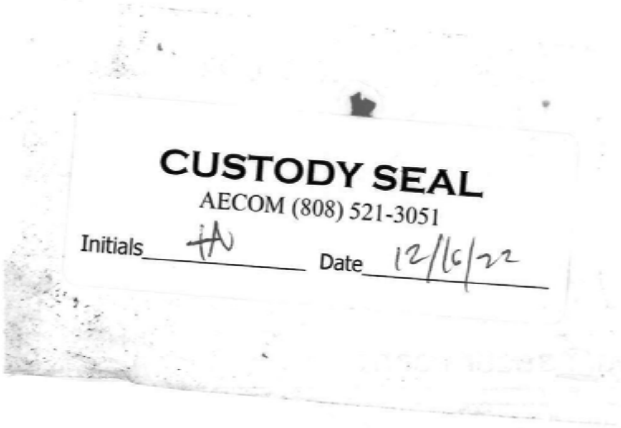

CUSTODY SEAL
AECOM (808) 521-3051
Initials HN
Date 12/16/22

PFAS

SAMPLE DATA

FORM I
ANALYSIS DATA SHEET

AF-RHMW16-WGN01B-2212W2

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0134-01	File ID:	S2022-12-22A (21)
Sampled:	12/16/22 18:40	Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:40
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	499.65 g / 2 ml			Instrument:	Saphira
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	8.5	1.6	0.80	0.21	
PFPEA	15	0.80	0.40	0.065	
PFHXA	2.8	0.40	0.20	0.055	
PFHPA	1.5	0.40	0.20	0.041	
PFOA	0.32 J	0.40	0.20	0.15	
PFNA	0.085 J	0.40	0.20	0.082	IR2,
PFDA	0.20 U	0.40	0.20	0.10	IR2,
PFUnA	0.20 U	0.40	0.20	0.16	IR2,
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	IR1,
PFBS	0.059 J	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	0.11 J	0.40	0.20	0.064	IR2,
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	22	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	IR1,
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	

FORM I
ANALYSIS DATA SHEET

AF-RHMW16-WGN01B-2212W2

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0134-01	File ID:	S2022-12-22A (21)
Sampled:	12/16/22 18:40	Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:40
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	499.65 g / 2 ml			Instrument:	Saphira
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011

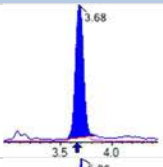
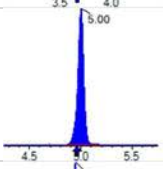
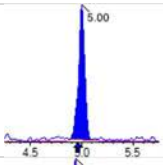
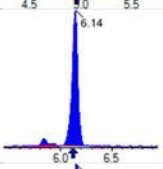
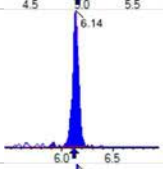
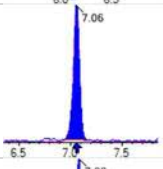
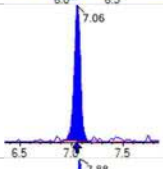
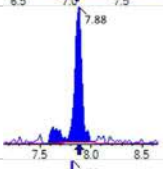
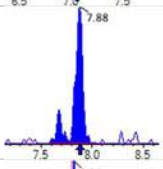
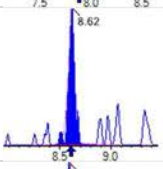
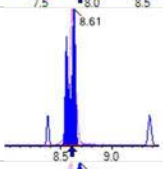
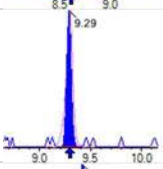
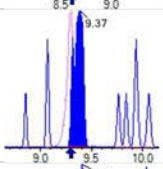
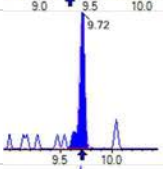
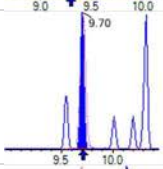
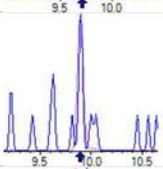
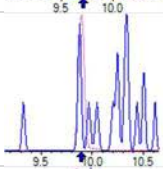
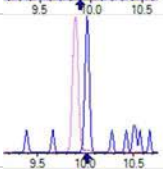
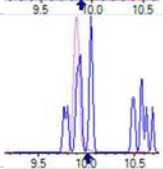
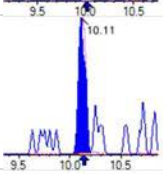
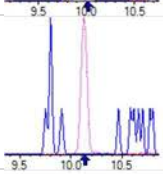
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.40 U	0.80	0.40	0.12	
PFEESA	0.40 U	0.80	0.40	0.11	
PFMPA	0.40 U	0.80	0.40	0.054	
PFMBA	0.40 U	0.80	0.40	0.091	
NFDHA	0.40 U	0.80	0.40	0.30	
9CL-PF3ONS	0.40 U	0.80	0.40	0.21	
11CL-PF3OUDS	0.40 U	0.80	0.40	0.21	
3:3FTCA	0.80 U	1.6	0.80	0.58	
5:3FTCA	0.80 U	1.6	0.80	0.44	IR2,
7:3FTCA	0.80 U	1.6	0.80	0.55	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (21)
Acquired: 2022/12/22 - 15:40

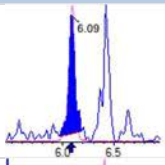
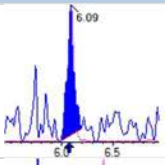
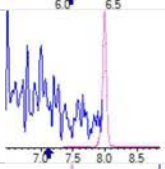
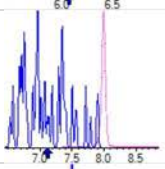
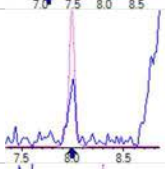
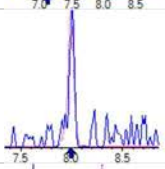
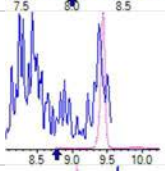
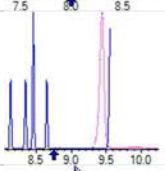
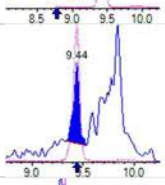
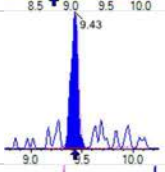
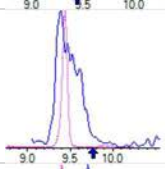
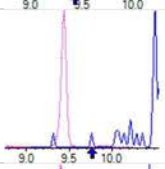
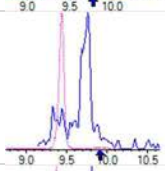
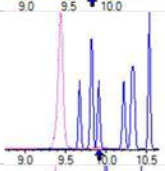
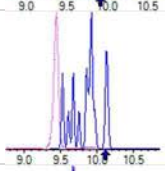
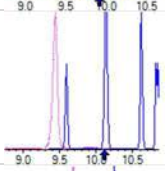
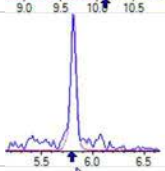
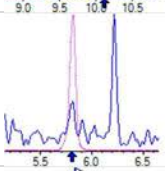
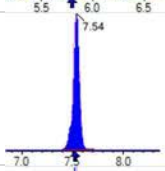
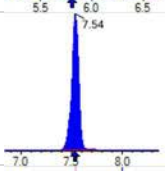
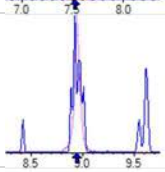
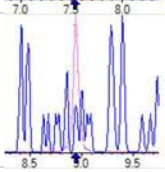
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 245740	(3.68 , 1.00) (0.00 , N/A , 0.0)	52.3	N/A 0.0 0.0	2.1194	N/A			
PFPeA	(262.9 / 219.0) 720233 (262.9 / 69.0) 8013	(5.00 , 1.00) (0.00 , N/A , 0.1)	671.1 134.9	0.0111 99.4 107.0	3.7856	N/A			
PFHxA	(313.0 / 269.0) 216073 (313.0 / 119.0) 18528	(6.14 , 1.00) (0.00 , N/A , 0.3)	453.8 1505.8	0.0857 87.7 96.0	0.7119	N/A			
PFHpA	(363.0 / 319.0) 101870 (363.0 / 169.0) 28740	(7.06 , 1.00) (0.00 , N/A , 0.1)	208.7 120.5	0.2821 90.6 91.5	0.3629	N/A			
PFOA	(413.0 / 369.0) 27570 (413.0 / 169.0) 9850	(7.88 , 1.00) (0.00 , N/A , -0.2)	144.7 465.7	0.3573 109.3 120.8	0.0806	N/A			
PFNA	(463.0 / 419.0) 4895 (463.0 / 169.0) 1821	(8.62 , 1.00) (0.01 , N/A , 0.5)	1083.7 25.4	0.3720 193.0 178.6	0.0213	N/A			IR2,
PFDA	(513.0 / 469.0) 5874 (513.0 / 169.0) 2249	(9.29 , 1.00) (-0.01 , N/A , -5.1)	59.4 11.9	0.3828 400.5 389.7	0.0163	N/A			IR2,
PFUnA	(563.0 / 519.0) 4225 (563.0 / 169.0) 1328	(9.72 , 1.00) (0.01 , N/A , 0.7)	38.3 36.5	0.3143 361.9 350.5	0.0117	N/A			IR2,
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) 3437 (713.0 / 169.0) N/A	(10.11 , 1.00) (-0.01 , N/A , #Value!)	17.1 N/A	N/A 0.0 0.0	0.0144	N/A			IR1,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (21)
Acquired: 2022/12/22 - 15:40

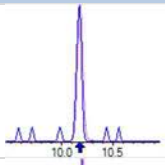
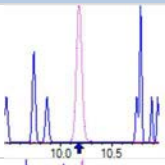
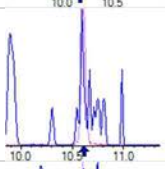
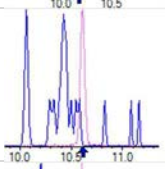
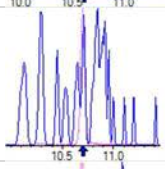
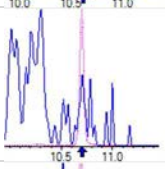
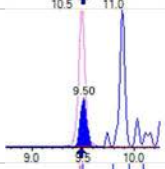
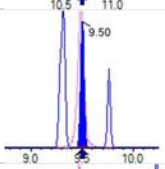
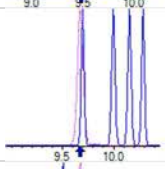
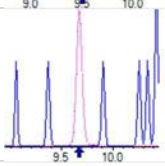
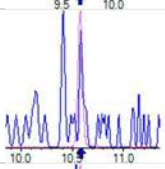
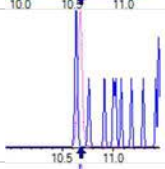
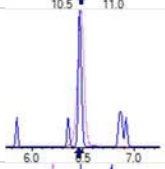
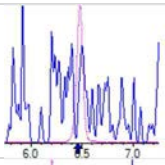
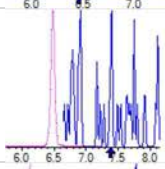
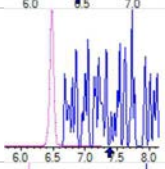
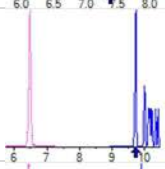
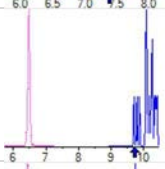
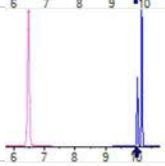
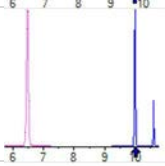
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 7103 (298.9 / 99.0) 3607	(6.09 , 1.00) (0.00 , N/A , 0.2)	24.9 19.5	0.5078 82.5 77.5	0.0147	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) 22041 (499.0 / 99.0) 7727	(9.44 , 1.00) (0.00 , N/A , 0.6)	16.0 25.9	0.3506 144.2 153.3	0.0278	N/A			IR2,
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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(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) 1269349 (427.0 / 81.0) 853676	(7.54 , 1.00) (0.00 , N/A , 0.1)	716.0 532.8	0.6725 86.4 96.5	5.5569	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (21)
Acquired: 2022/12/22 - 15:40

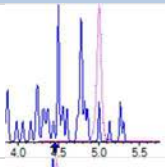
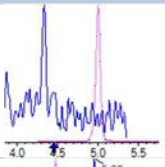
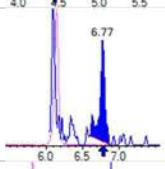
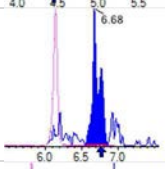
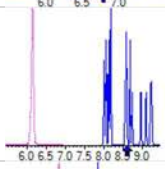
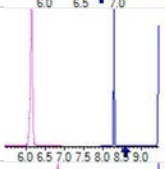
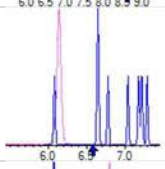
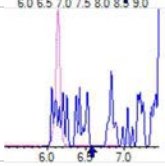
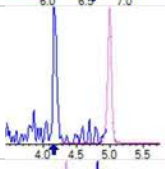
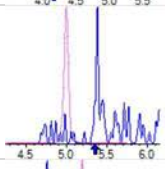
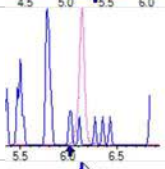
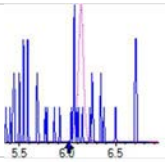
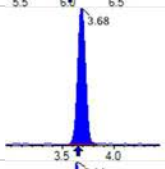
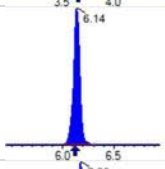
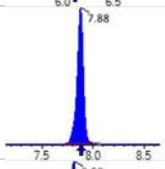
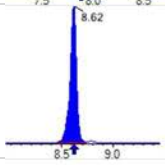
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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) 1918 (570.0 / 483.0) 548	(9.50 , 1.00) (0.01 , N/A , 0.0)	81.7 77.9	0.2858 46.5 57.2	0.0124	N/A			IR1,
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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (21)
Acquired: 2022/12/22 - 15:40

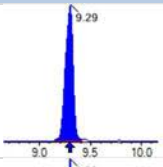
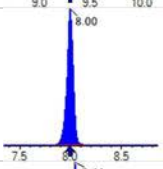
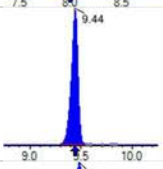
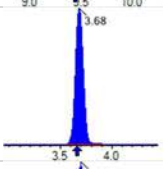
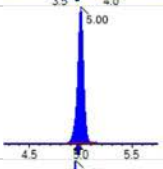
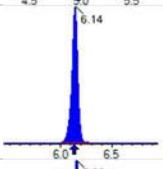
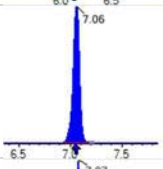
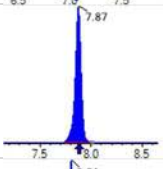
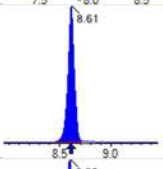
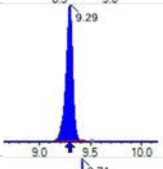
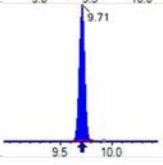
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
5:3FTCA	(341.0 / 236.7) 3542 (341.0 / 217.0) 10381	(6.77 , 1.10) (N/A , 0.01 , 5.6)	22.7 29.9	2.9310 200.2 182.4	0.0660	N/A			IR2,
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) 200432	(3.68 , N/A) (N/A , 0.03 , N/A)	622.7	N/A	1.4400 [1.0000]	144.0% { 127.6% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 300989	(6.14 , N/A) (N/A , 0.01 , N/A)	629.0	N/A	1.3034 [1.0000]	130.3% { 127.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 313035	(7.88 , N/A) (N/A , 0.00 , N/A)	634.1	N/A	1.4239 [1.0000]	142.4% { 121.9% }			
13C5_PFNA_IIS	(468.0 / 423.0) 263952	(8.62 , N/A) (N/A , 0.00 , N/A)	314.5	N/A	1.4254 [1.0000]	142.5% { 112.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (21)
Acquired: 2022/12/22 - 15:40

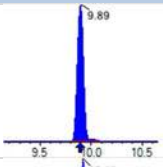
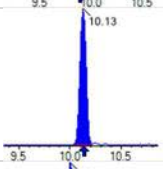
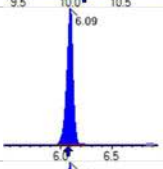
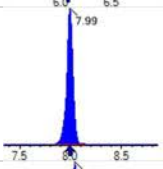
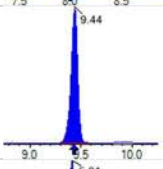
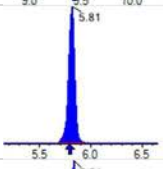
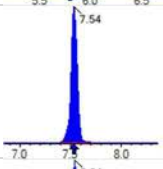
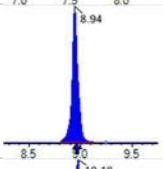
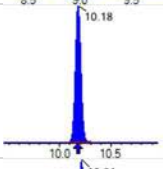
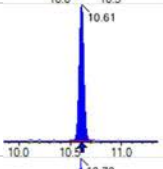
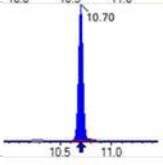
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 255756	(9.29 , N/A) (N/A , 0.00 , N/A)	415.5	N/A	1.3839 [1.0000]	138.4% { 136.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 593590	(8.00 , N/A) (N/A , 0.00 , N/A)	829.5	N/A	1.4703 [1.0000]	147.0% { 133.0% }			
13C4_PFOS_IIS	(502.8 / 79.9) 524455	(9.44 , N/A) (N/A , 0.00 , N/A)	351.9	N/A	1.6431 [1.0000]	164.3% { 151.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1421847	(3.68 , N/A) (N/A , 0.03 , N/A)	840.4	N/A	6.8925 [8.0000]	86.2% { 113.2% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 866509	(5.00 , N/A) (N/A , 0.03 , N/A)	719.2	N/A	4.1376 [4.0000]	103.4% { 127.5% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 706806	(6.14 , N/A) (N/A , 0.01 , N/A)	757.6	N/A	2.0406 [2.0000]	102.0% { 131.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 615938	(7.06 , N/A) (N/A , 0.01 , N/A)	657.2	N/A	2.0384 [2.0000]	101.9% { 136.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 696117	(7.87 , N/A) (N/A , 0.00 , N/A)	604.3	N/A	2.0278 [2.0000]	101.4% { 116.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 268187	(8.61 , N/A) (N/A , 0.00 , N/A)	483.4	N/A	0.9240 [1.0000]	92.4% { 115.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 379019	(9.29 , N/A) (N/A , 0.00 , N/A)	397.4	N/A	1.0420 [1.0000]	104.2% { 137.7% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 455404	(9.71 , N/A) (N/A , 0.00 , N/A)	603.7	N/A	0.8802 [1.0000]	88.0% { 122.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (21)
Acquired: 2022/12/22 - 15:40

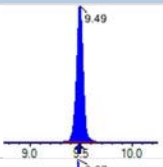
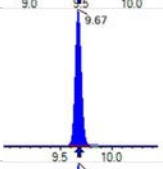
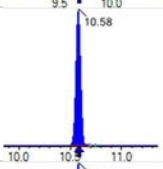
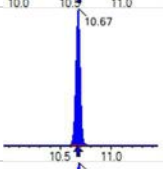
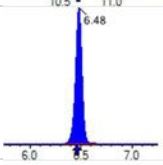
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 430731	(9.89 , N/A) (N/A , 0.00 , N/A)	603.9	N/A	0.8341 [1.0000]	83.4% { 117.6% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 268770	(10.13 , N/A) (N/A , 0.01 , N/A)	370.8	N/A	0.7837 [1.0000]	78.4% { 105.3% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1761908	(6.09 , N/A) (N/A , 0.02 , N/A)	529.7	N/A	1.7556 [2.0000]	87.8% { 132.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 1002509	(7.99 , N/A) (N/A , 0.00 , N/A)	781.2	N/A	1.8774 [2.0000]	93.9% { 130.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1461324	(9.44 , N/A) (N/A , 0.00 , N/A)	362.9	N/A	1.6235 [2.0000]	81.2% { 130.8% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 495187	(5.81 , N/A) (N/A , 0.02 , N/A)	908.9	N/A	5.8255 [4.0000]	145.6% { 220.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 594266	(7.54 , N/A) (N/A , 0.00 , N/A)	932.3	N/A	5.8067 [4.0000]	145.2% { 176.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 659638	(8.94 , N/A) (N/A , -0.01 , N/A)	383.2	N/A	6.4387 [4.0000]	161.0% { 208.8% }			S2,
13C8_PFOSA_EIS	(506.0 / 78.0) 1231810	(10.18 , N/A) (N/A , 0.00 , N/A)	701.3	N/A	1.0827 [2.0000]	54.1% { 90.3% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 125934	(10.61 , N/A) (N/A , 0.00 , N/A)	416.0	N/A	0.5070 [2.0000]	25.3% { 43.9% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 112373	(10.70 , N/A) (N/A , 0.00 , N/A)	668.5	N/A	0.4900 [2.0000]	24.5% { 37.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (21)
Acquired: 2022/12/22 - 15:40

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 793986	(9.49 , N/A) (N/A , 0.00 , N/A)	638.2	N/A	3.7096 [4.0000]	92.7% { 150.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 702005	(9.67 , N/A) (N/A , -0.01 , N/A)	451.2	N/A	3.7211 [4.0000]	93.0% { 169.2% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 224895	(10.58 , N/A) (N/A , 0.00 , N/A)	782.5	N/A	6.4475 [20.0000]	32.2% { 51.7% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 82835	(10.67 , N/A) (N/A , 0.00 , N/A)	966.5	N/A	5.2165 [20.0000]	26.1% { 41.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1243944	(6.48 , N/A) (N/A , 0.01 , N/A)	867.6	N/A	6.7549 [8.0000]	84.4% { 102.2% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW16-WGN01B-2212W2

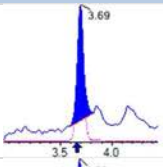
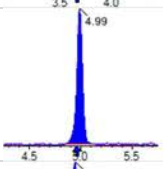
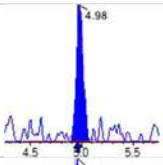
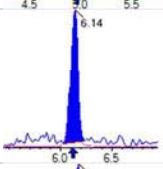
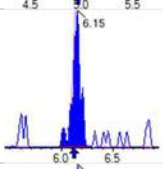
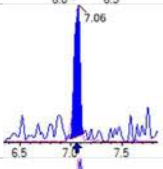
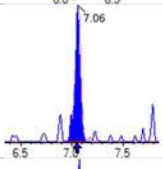
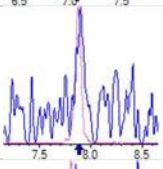
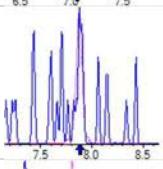
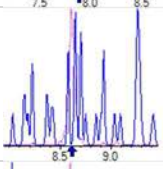
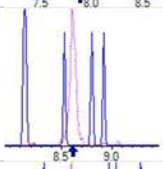
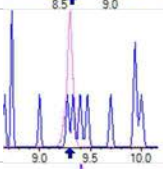
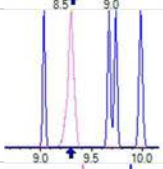
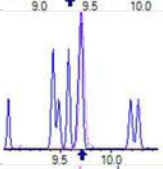
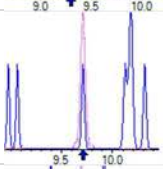
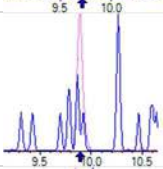
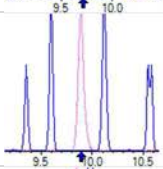
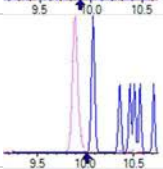
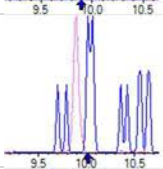
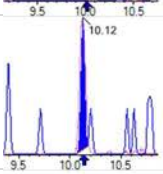
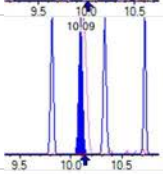
Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0134-01RE1	File ID:	S2022-12-22A (22)
Sampled:	12/16/22 18:40	Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:53
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	499.65 g / 2 ml			Instrument:	Saphira
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (22)
Acquired: 2022/12/22 - 15:53

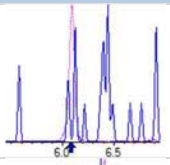
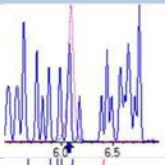
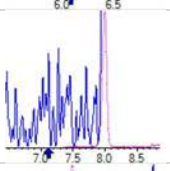
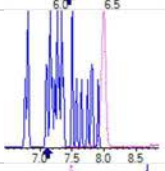
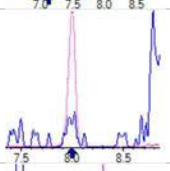
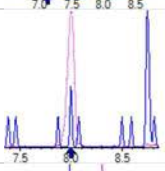
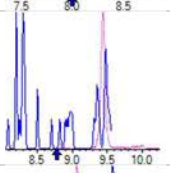
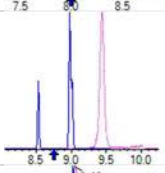
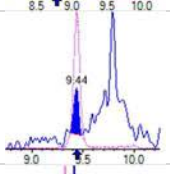
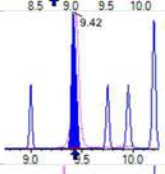
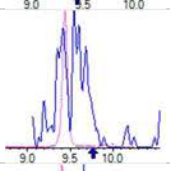
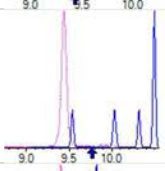
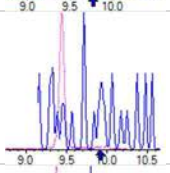
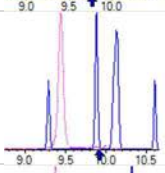
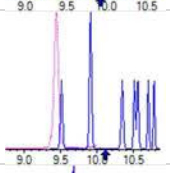
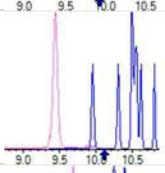
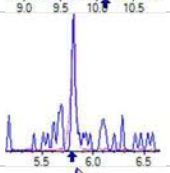
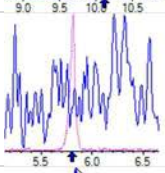
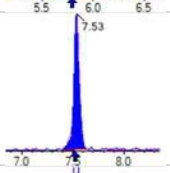
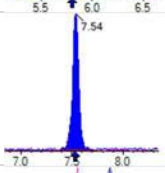
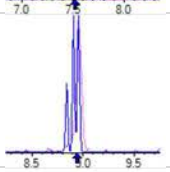
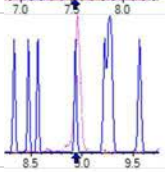
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 22891	(3.69 , 1.00) (0.00 , N/A , 0.0)	41.8	N/A 0.0 0.0	0.1954	N/A			
PFPeA	(262.9 / 219.0) 68068 (262.9 / 69.0) 1050	(4.99 , 1.00) (0.00 , N/A , 0.7)	357.7 28.3	0.0154 137.9 148.4	0.3730	N/A			
PFHxA	(313.0 / 269.0) 19252 (313.0 / 119.0) 2382	(6.14 , 1.00) (0.00 , N/A , -0.5)	64.3 1487.0	0.1237 126.6 138.5	0.0659	N/A			
PFHpA	(363.0 / 319.0) 9183 (363.0 / 169.0) 4290	(7.06 , 1.00) (0.00 , N/A , 0.4)	27.3 47.3	0.4672 150.0 151.6	0.0351	N/A			IR2,
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) 884 (713.0 / 169.0) 317	(10.12 , 1.00) (0.00 , N/A , 1.9)	14.9 52.7	0.3588 176.4 174.8	0.0042	N/A			IR2,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (22)
Acquired: 2022/12/22 - 15:53

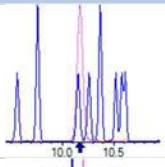
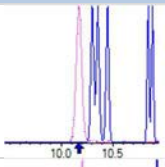
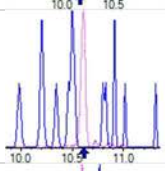
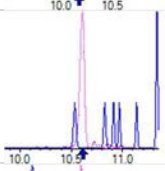
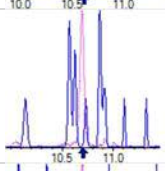
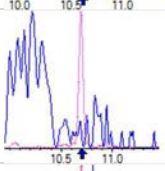
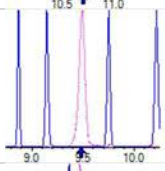
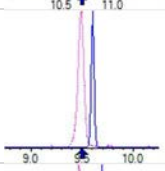
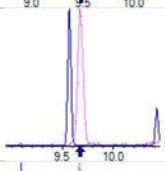
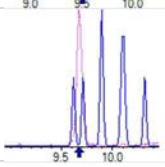
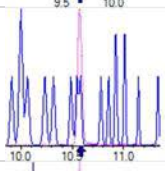
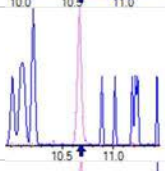
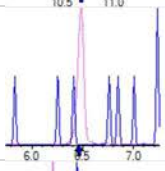
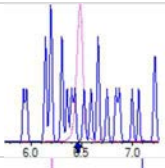
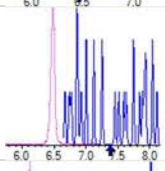
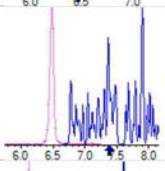
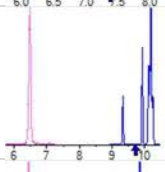
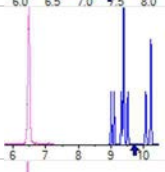
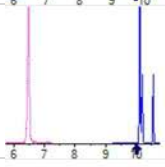
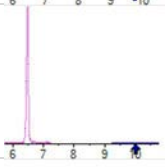
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) N/A (298.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 3561 (499.0 / 99.0) 865	(9.44 , 1.00) (0.00 , N/A , 1.0)	8.1 26.8	0.2429 99.9 106.2	0.0044	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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(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) 97639 (427.0 / 81.0) 72908	(7.53 , 1.00) (-0.01 , N/A , -0.2)	253.2 218.5	0.7467 95.9 107.1	0.6019	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (22)
Acquired: 2022/12/22 - 15:53

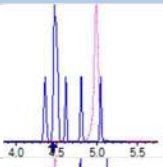
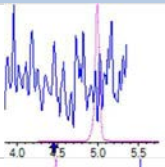
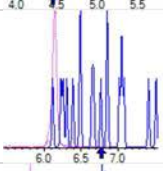
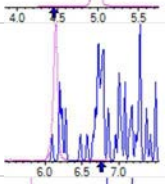
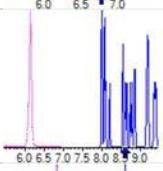
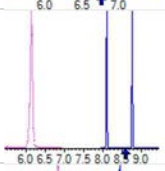
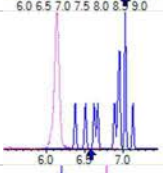
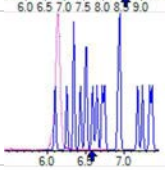
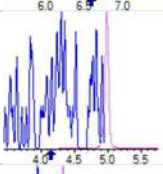
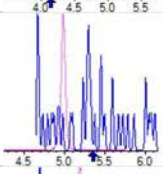
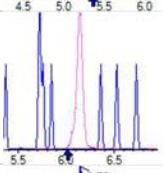
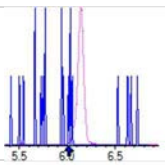
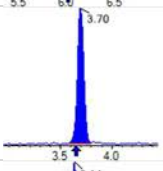
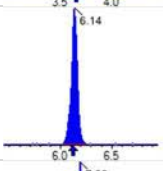
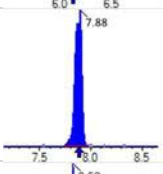
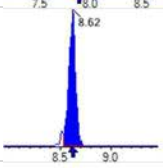
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (22)
Acquired: 2022/12/22 - 15:53

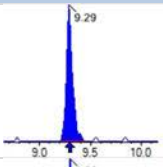
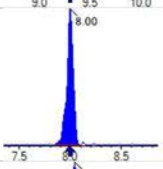
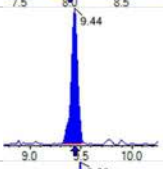
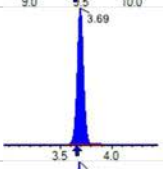
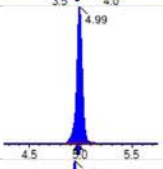
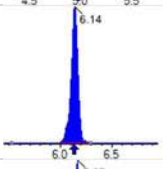
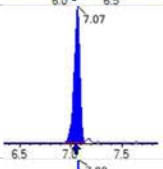
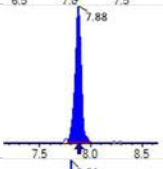
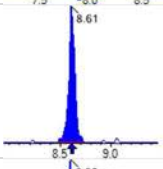
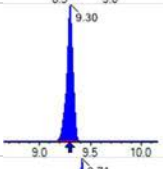
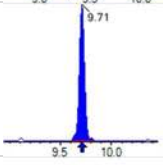
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 19672	(3.70 , N/A) (N/A , 0.04 , N/A)	361.3	N/A	1.4133 [1.0000]	141.3% { 12.5% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 34626	(6.14 , N/A) (N/A , 0.01 , N/A)	451.3	N/A	1.4995 [1.0000]	149.9% { 14.7% }			
13C4_PFOA_IIS	(417.0 / 372.0) 31290	(7.88 , N/A) (N/A , 0.00 , N/A)	386.2	N/A	1.4233 [1.0000]	142.3% { 12.2% }			
13C5_PFNA_IIS	(468.0 / 423.0) 22006	(8.62 , N/A) (N/A , 0.00 , N/A)	275.8	N/A	1.1883 [1.0000]	118.8% { 9.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (22)
Acquired: 2022/12/22 - 15:53

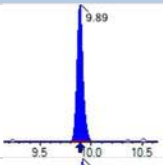
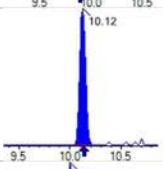
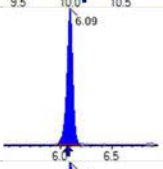
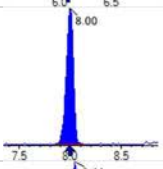
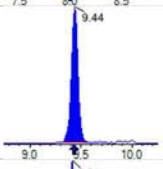
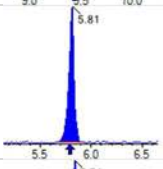
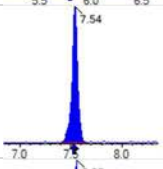
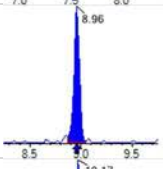
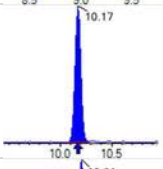
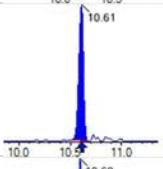
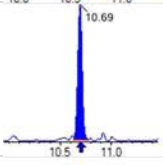
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 18768	(9.29 , N/A) (N/A , 0.00 , N/A)	241.6	N/A	1.0155 [1.0000]	101.6% { 10.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 52461	(8.00 , N/A) (N/A , 0.00 , N/A)	504.9	N/A	1.2995 [1.0000]	129.9% { 11.8% }			
13C4_PFOS_IIS	(502.8 / 79.9) 50621	(9.44 , N/A) (N/A , 0.00 , N/A)	125.2	N/A	1.5860 [1.0000]	158.6% { 14.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 143663	(3.69 , N/A) (N/A , 0.04 , N/A)	791.5	N/A	0.7096 [0.8000]	88.7% { 11.4% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 83122	(4.99 , N/A) (N/A , 0.02 , N/A)	542.9	N/A	0.3450 [0.4000]	86.3% { 12.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 68068	(6.14 , N/A) (N/A , 0.01 , N/A)	400.8	N/A	0.1708 [0.2000]	85.4% { 12.7% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 57485	(7.07 , N/A) (N/A , 0.01 , N/A)	346.0	N/A	0.1654 [0.2000]	82.7% { 12.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 63511	(7.88 , N/A) (N/A , 0.00 , N/A)	484.9	N/A	0.1851 [0.2000]	92.5% { 10.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 25348	(8.61 , N/A) (N/A , 0.00 , N/A)	195.8	N/A	0.1048 [0.1000]	104.8% { 10.9% }			
13C6_PFDA_EIS	(519.0 / 474.0) 34371	(9.30 , N/A) (N/A , 0.01 , N/A)	1164673.4	N/A	0.1288 [0.1000]	128.8% { 12.5% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 56654	(9.71 , N/A) (N/A , 0.00 , N/A)	485.2	N/A	0.1492 [0.1000]	149.2% { 15.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (22)
Acquired: 2022/12/22 - 15:53

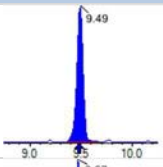
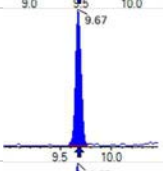
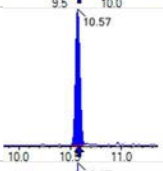
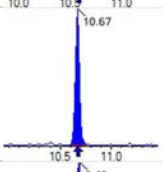
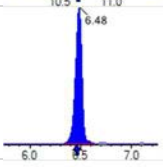
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 46606	(9.89 , N/A) (N/A , 0.00 , N/A)	303.9	N/A	0.1230 [0.1000]	123.0% { 12.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 24001	(10.12 , N/A) (N/A , 0.00 , N/A)	180.7	N/A	0.0954 [0.1000]	95.4% { 9.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 168066	(6.09 , N/A) (N/A , 0.02 , N/A)	451.1	N/A	0.1895 [0.2000]	94.7% { 12.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 90877	(8.00 , N/A) (N/A , 0.00 , N/A)	330.3	N/A	0.1926 [0.2000]	96.3% { 11.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 149982	(9.44 , N/A) (N/A , 0.01 , N/A)	228.7	N/A	0.1726 [0.2000]	86.3% { 13.4% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 27998	(5.81 , N/A) (N/A , 0.02 , N/A)	252.6	N/A	0.3727 [0.4000]	93.2% { 12.4% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 42199	(7.54 , N/A) (N/A , 0.01 , N/A)	404.5	N/A	0.4666 [0.4000]	116.6% { 12.5% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 37785	(8.96 , N/A) (N/A , 0.01 , N/A)	167.1	N/A	0.4173 [0.4000]	104.3% { 12.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 122216	(10.17 , N/A) (N/A , 0.00 , N/A)	414.0	N/A	0.1113 [0.2000]	55.6% { 9.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 15292	(10.61 , N/A) (N/A , 0.00 , N/A)	158.2	N/A	0.0638 [0.2000]	31.9% { 5.3% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 10430	(10.69 , N/A) (N/A , 0.00 , N/A)	154.0	N/A	0.0471 [0.2000]	23.6% { 3.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-01RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (22)
Acquired: 2022/12/22 - 15:53

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 71481	(9.49 , N/A) (N/A , 0.00 , N/A)	218.7	N/A	0.3460 [0.4000]	86.5% { 13.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 51607	(9.67 , N/A) (N/A , -0.01 , N/A)	175.8	N/A	0.2834 [0.4000]	70.9% { 12.4% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 20731	(10.57 , N/A) (N/A , 0.00 , N/A)	262.6	N/A	0.6158 [2.0000]	30.8% { 4.8% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 10089	(10.67 , N/A) (N/A , 0.00 , N/A)	306.8	N/A	0.6583 [2.0000]	32.9% { 5.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 135244	(6.48 , N/A) (N/A , 0.01 , N/A)	473.2	N/A	0.6384 [0.8000]	79.8% { 11.1% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW17D-WGN01B-2212W2

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0134-02	File ID:	S2022-12-22A (23)
Sampled:	12/16/22 11:05	Prepared:	12/20/22 15:01	Analyzed:	12/22/22 16:06
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	512.44 g / 2 ml			Instrument:	Saphira
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.78 U	1.6	0.78	0.20	
PFPEA	0.94	0.78	0.39	0.063	
PFHXA	1.6	0.39	0.20	0.054	
PFHPA	0.29 J	0.39	0.20	0.040	
PFOA	0.79	0.39	0.20	0.15	
PFNA	0.33 J	0.39	0.20	0.080	
PFDA	0.43	0.39	0.20	0.099	
PFUnA	0.20 U	0.39	0.20	0.16	IR2,
PFDOA	0.27 J	0.39	0.20	0.11	
PFTRDA	0.29 U	0.39	0.29	0.20	
PFTEDA	0.23 J	0.39	0.20	0.19	
PFBS	0.16 J	0.39	0.20	0.036	
PFPES	0.20 U	0.39	0.20	0.061	
PFHXS	0.15 J	0.39	0.20	0.031	
PFHPS	0.20 U	0.39	0.20	0.050	
PFOS	1.1	0.39	0.20	0.062	
PFNS	0.20 U	0.39	0.20	0.12	
PFDS	0.20 U	0.39	0.20	0.15	
PFDOS	0.20 U	0.39	0.20	0.12	
4:2FTS	0.78 U	1.6	0.78	0.28	
6:2FTS	120	1.6	0.78	0.31	
8:2FTS	0.78 U	1.6	0.78	0.080	
PFOSA	0.11 J	0.39	0.20	0.10	
NMeFOSA	0.78 U	1.6	0.78	0.46	
NEtFOSA	0.78 U	1.6	0.78	0.40	
NMeFOSAA	0.20 U	0.39	0.20	0.10	
NEtFOSAA	0.20 U	0.39	0.20	0.11	
NMeFOSE	1.2 U	1.6	1.2	0.99	
NEtFOSE	1.2 U	1.6	1.2	1.0	
HFPO-DA	0.39 U	0.78	0.39	0.17	

FORM I
ANALYSIS DATA SHEET

AF-RHMW17D-WGN01B-2212W2

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0134-02	File ID:	S2022-12-22A (23)
Sampled:	12/16/22 11:05	Prepared:	12/20/22 15:01	Analyzed:	12/22/22 16:06
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	512.44 g / 2 ml			Instrument:	Saphira
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011

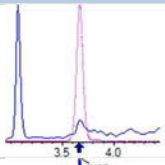
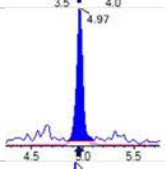
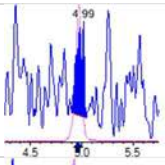
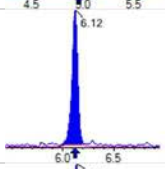
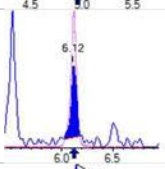
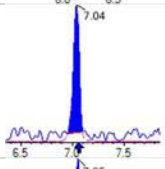
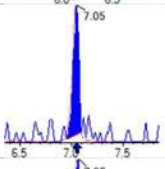
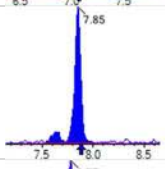
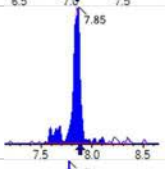
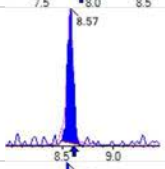
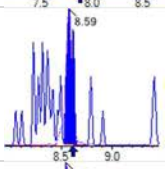
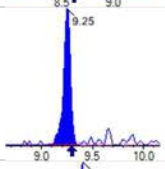
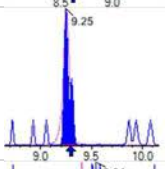
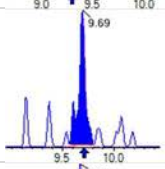
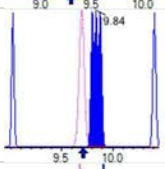
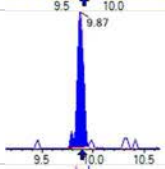
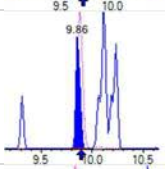
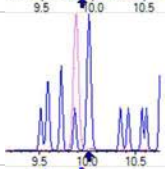
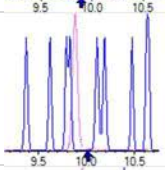
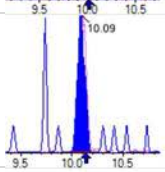
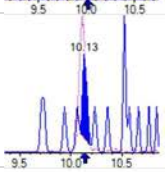
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.39 U	0.78	0.39	0.12	
PFEESA	0.39 U	0.78	0.39	0.11	
PFMPA	0.39 U	0.78	0.39	0.053	
PFMBA	0.39 U	0.78	0.39	0.089	
NFDHA	0.39 U	0.78	0.39	0.29	
9CL-PF3ONS	0.39 U	0.78	0.39	0.20	
11CL-PF3OUDS	0.39 U	0.78	0.39	0.20	
3:3FTCA	0.78 U	1.6	0.78	0.56	
5:3FTCA	0.78 U	1.6	0.78	0.43	
7:3FTCA	0.78 U	1.6	0.78	0.54	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (23)
Acquired: 2022/12/22 - 16:06

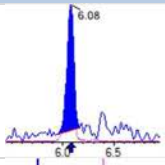
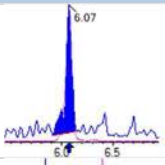
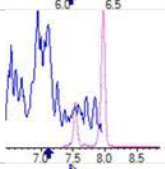
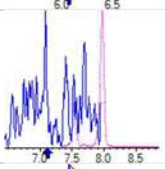
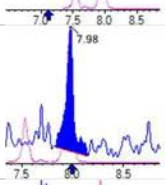
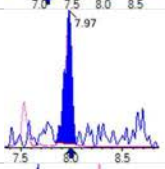
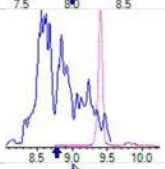
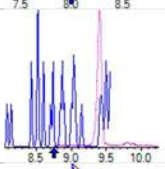
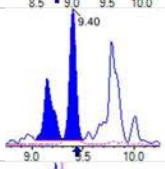
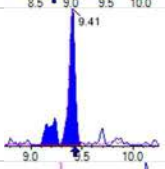
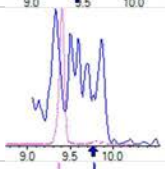
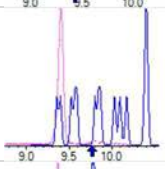
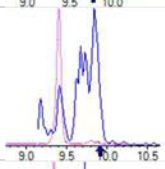
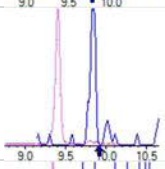
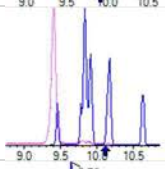
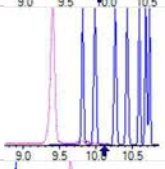
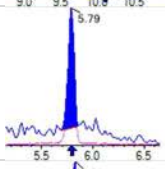
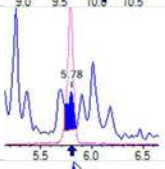
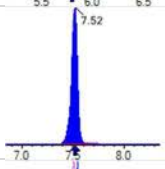
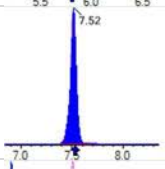
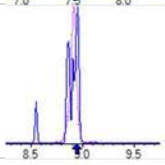
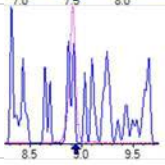
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) 28222 (262.9 / 69.0) 345	(4.97 , 1.00) (0.00 , N/A , -1.0)	83.8 8.2	0.0122 109.1 117.5	0.2420	N/A			
PFHxA	(313.0 / 269.0) 84980 (313.0 / 119.0) 8570	(6.12 , 1.00) (0.00 , N/A , 0.0)	148.1 22.3	0.1008 103.1 112.9	0.4176	N/A			
PFHpA	(363.0 / 319.0) 15206 (363.0 / 169.0) 3162	(7.04 , 1.00) (0.00 , N/A , -0.5)	54.4 28.1	0.2080 66.8 67.5	0.0730	N/A			
PFOA	(413.0 / 369.0) 51046 (413.0 / 169.0) 17697	(7.85 , 1.00) (0.00 , N/A , -0.1)	272.2 237.1	0.3467 106.1 117.2	0.2023	N/A			
PFNA	(463.0 / 419.0) 13692 (463.0 / 169.0) 1658	(8.57 , 1.00) (0.00 , N/A , -0.7)	53.7 8.2	0.1211 62.8 58.1	0.0846	N/A			
PFDA	(513.0 / 469.0) 21179 (513.0 / 169.0) 2617	(9.25 , 1.00) (0.00 , N/A , 0.2)	65.7 28.6	0.1236 129.3 125.8	0.1106	N/A			
PFUnA	(563.0 / 519.0) 5255 (563.0 / 169.0) 790	(9.69 , 1.00) (0.00 , N/A , -8.8)	22.8 59.5	0.1504 173.2 167.8	0.0270	N/A			IR2,
PFDoA	(613.0 / 569.0) 8623 (613.0 / 169.0) 816	(9.87 , 1.00) (0.00 , N/A , 0.9)	83.4 20.9	0.0946 68.0 72.0	0.0679	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) 3490 (713.0 / 169.0) 718	(10.09 , 1.00) (-0.02 , N/A , -2.7)	20.8 6.5	0.2056 101.1 100.2	0.0599	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (23)
Acquired: 2022/12/22 - 16:06

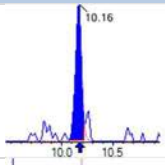
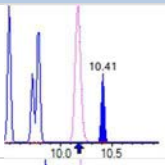
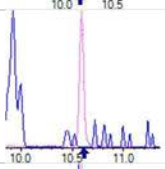
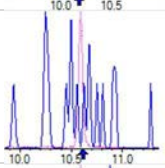
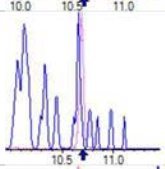
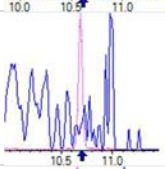
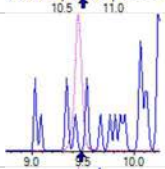
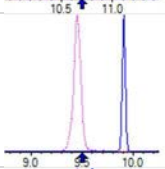
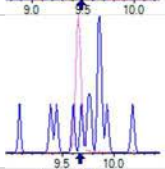
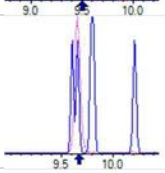
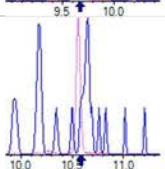
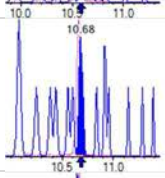
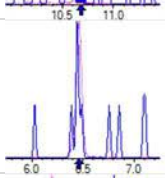
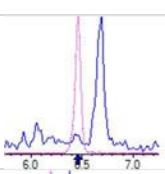
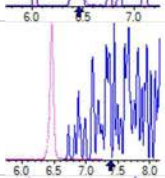
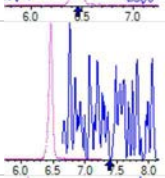
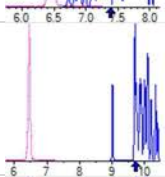
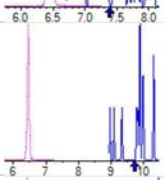
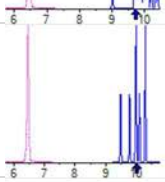
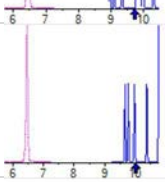
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 16303 (298.9 / 99.0) 12231	(6.08 , 1.00) (0.01 , N/A , 0.5)	39.2 40.6	0.7502 121.9 114.6	0.0420	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) 20800 (399.0 / 99.0) 6335	(7.98 , 1.00) (0.00 , N/A , 0.1)	45.5 54.8	0.3046 90.6 92.0	0.0389	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) 147452 (499.0 / 99.0) 28958	(9.40 , 1.00) (0.00 , N/A , -0.4)	23.4 42.8	0.1964 80.8 85.9	0.2754	N/A			MI5 DG 2022-12-27
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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(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) 27123 (327.0 / 81.0) 15853	(5.79 , 1.00) (0.00 , N/A , 0.4)	49.9 7.6	0.5845 118.3 102.1	0.0665	N/A			
6:2FTS	(427.0 / 407.0) 8200184 (427.0 / 81.0) 5209501	(7.52 , 1.00) (0.01 , N/A , 0.0)	934.7 688.7	0.6353 81.6 91.1	29.9827	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (23)
Acquired: 2022/12/22 - 16:06

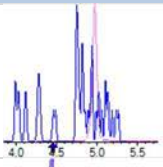
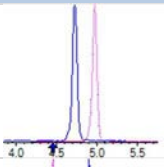
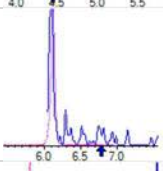
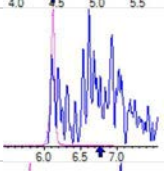
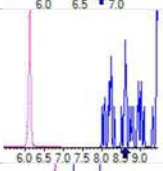
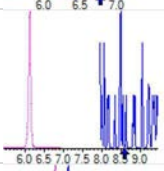
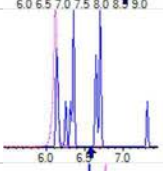
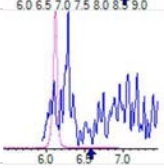
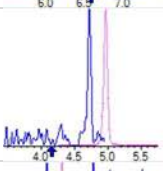
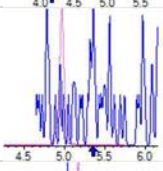
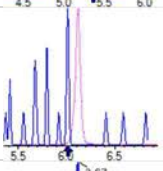
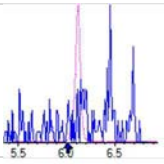
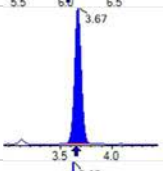
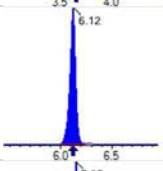
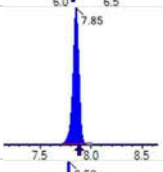
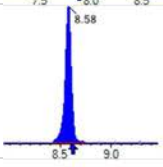
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 9058 (498.0 / 478.0) 270	(10.16 , 1.00) (0.00 , N/A , -14.8)	45.5 47.0	0.0298 142.8 122.7	0.0273	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 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) 159	(10.68 , 1.00) (0.02 , N/A , 0.0)	6.8	N/A 0.0 0.0	0.2415	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (23)
Acquired: 2022/12/22 - 16:06

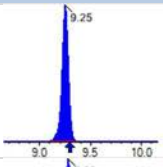
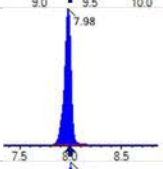
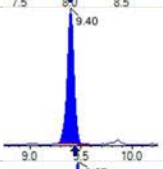
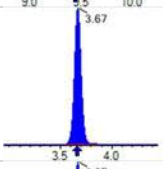
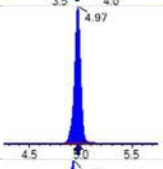
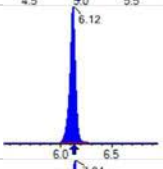
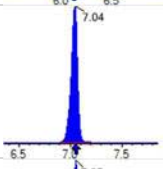
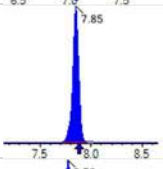
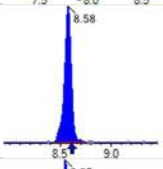
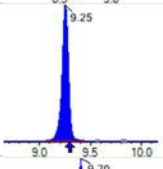
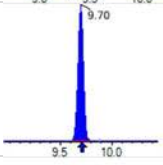
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 130342	(3.67 , N/A) (N/A , 0.01 , N/A)	477.2	N/A	0.9364 [1.0000]	93.6% { 83.0% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 241469	(6.12 , N/A) (N/A , 0.00 , N/A)	620.1	N/A	1.0457 [1.0000]	104.6% { 102.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 282860	(7.85 , N/A) (N/A , -0.02 , N/A)	719.0	N/A	1.2866 [1.0000]	128.7% { 110.1% }			
13C5_PFNA_IIS	(468.0 / 423.0) 186528	(8.58 , N/A) (N/A , -0.04 , N/A)	372.9	N/A	1.0073 [1.0000]	100.7% { 79.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (23)
Acquired: 2022/12/22 - 16:06

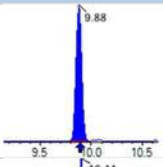
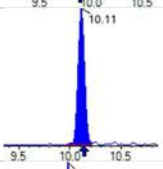
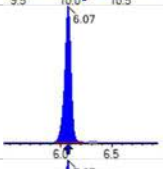
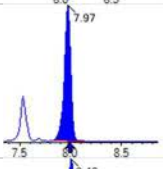
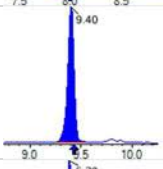
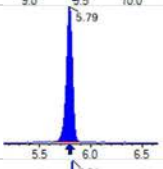
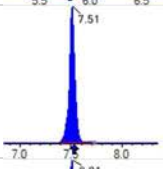
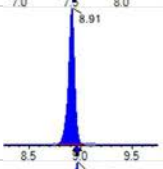
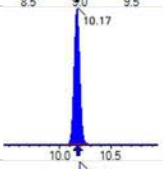
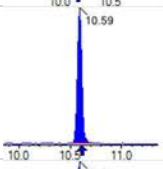
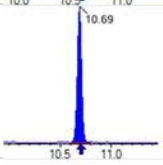
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 168124	(9.25 , N/A) (N/A , -0.04 , N/A)	542.3	N/A	0.9097 [1.0000]	91.0% { 89.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 426935	(7.98 , N/A) (N/A , -0.02 , N/A)	547.0	N/A	1.0575 [1.0000]	105.8% { 95.7% }			
13C4_PFOS_IIS	(502.8 / 79.9) 324520	(9.40 , N/A) (N/A , -0.04 , N/A)	219.6	N/A	1.0167 [1.0000]	101.7% { 93.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 233214	(3.67 , N/A) (N/A , 0.01 , N/A)	700.8	N/A	1.7384 [8.0000]	21.7% { 18.6% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 531174	(4.97 , N/A) (N/A , 0.00 , N/A)	733.2	N/A	3.1615 [4.0000]	79.0% { 78.1% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 473888	(6.12 , N/A) (N/A , -0.01 , N/A)	496.1	N/A	1.7054 [2.0000]	85.3% { 88.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 456867	(7.04 , N/A) (N/A , -0.01 , N/A)	478.1	N/A	1.8847 [2.0000]	94.2% { 101.6% }			
13C8_PFOA_EIS	(421.0 / 376.0) 513275	(7.85 , N/A) (N/A , -0.02 , N/A)	719.8	N/A	1.6547 [2.0000]	82.7% { 86.2% }			
13C9_PFNA_EIS	(472.0 / 427.0) 188612	(8.58 , N/A) (N/A , -0.04 , N/A)	361.1	N/A	0.9196 [1.0000]	92.0% { 81.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 201272	(9.25 , N/A) (N/A , -0.04 , N/A)	359.1	N/A	0.8417 [1.0000]	84.2% { 73.1% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 246696	(9.70 , N/A) (N/A , -0.01 , N/A)	535.1	N/A	0.7253 [1.0000]	72.5% { 66.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (23)
Acquired: 2022/12/22 - 16:06

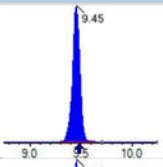
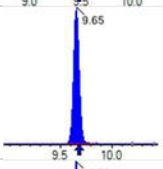
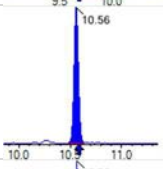
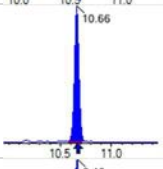
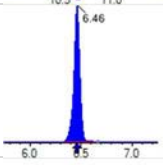
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 147282	(9.88 , N/A) (N/A , -0.01 , N/A)	392.5	N/A	0.4339 [1.0000]	43.4% { 40.2% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 65780	(10.11 , N/A) (N/A , -0.01 , N/A)	192.2	N/A	0.2918 [1.0000]	29.2% { 25.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1415471	(6.07 , N/A) (N/A , 0.00 , N/A)	518.0	N/A	1.9609 [2.0000]	98.0% { 106.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 688399	(7.97 , N/A) (N/A , -0.02 , N/A)	169.5	N/A	1.7924 [2.0000]	89.6% { 89.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 986557	(9.40 , N/A) (N/A , -0.03 , N/A)	227.0	N/A	1.7713 [2.0000]	88.6% { 88.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 493625	(5.79 , N/A) (N/A , 0.00 , N/A)	479.5	N/A	8.0739 [4.0000]	201.8% { 219.3% }			S2,
13C2_6:2FTS_EIS	(429.0 / 81.0) 711520	(7.51 , N/A) (N/A , -0.02 , N/A)	619.2	N/A	9.6663 [4.0000]	241.7% { 211.6% }			S2,
13C2_8:2FTS_EIS	(529.0 / 81.0) 475752	(8.91 , N/A) (N/A , -0.03 , N/A)	472.0	N/A	6.4565 [4.0000]	161.4% { 150.6% }			S2,
13C8_PFOSA_EIS	(506.0 / 78.0) 702832	(10.17 , N/A) (N/A , -0.01 , N/A)	803.9	N/A	0.9983 [2.0000]	49.9% { 51.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 59958	(10.59 , N/A) (N/A , -0.02 , N/A)	457.3	N/A	0.3901 [2.0000]	19.5% { 20.9% }			S1,
D5_NEtFOSA_EIS	(531.1 / 169.0) 55051	(10.69 , N/A) (N/A , -0.01 , N/A)	484.8	N/A	0.3880 [2.0000]	19.4% { 18.1% }			S1,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (23)
Acquired: 2022/12/22 - 16:06

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 363250	(9.45 , N/A) (N/A , -0.03 , N/A)	403.7	N/A	2.7427 [4.0000]	68.6% { 68.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 549850	(9.65 , N/A) (N/A , -0.03 , N/A)	344.1	N/A	4.7102 [4.0000]	117.8% { 132.5% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 82860	(10.56 , N/A) (N/A , -0.02 , N/A)	550.1	N/A	3.8391 [20.0000]	19.2% { 19.1% }			S1,
D9_NEtFOSE_EIS	(639.2 / 58.9) 25758	(10.66 , N/A) (N/A , -0.01 , N/A)	455.7	N/A	2.6215 [20.0000]	13.1% { 13.0% }			S1,
13C3_HFPODA_EIS	(287.0 / 169.0) 872884	(6.46 , N/A) (N/A , -0.01 , N/A)	657.4	N/A	5.9083 [8.0000]	73.9% { 71.7% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW17D-WGN01B-2212W2

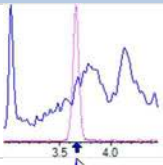
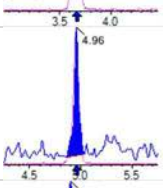
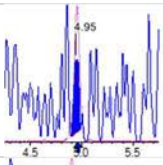
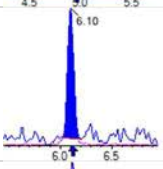
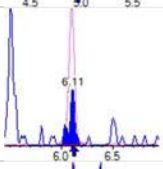
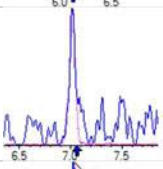
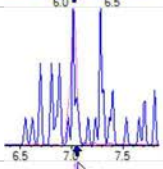
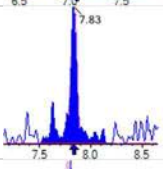
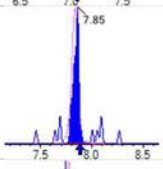
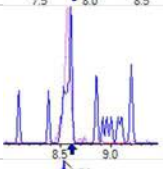
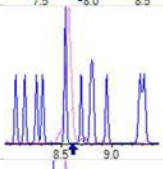
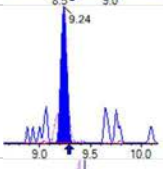
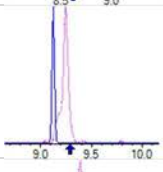
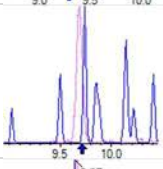
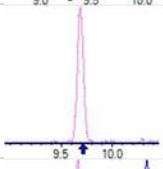
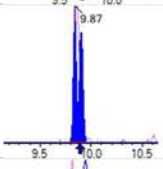
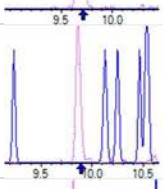
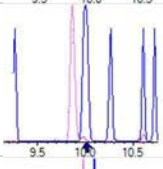
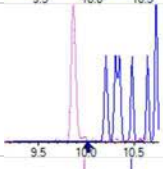
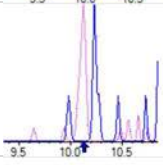
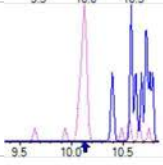
Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0134-02RE1	File ID:	S2022-12-22A (24)
Sampled:	12/16/22 11:05	Prepared:	12/20/22 15:01	Analyzed:	12/22/22 16:19
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	512.44 g / 2 ml			Instrument:	Saphira
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (24)
Acquired: 2022/12/22 - 16:19

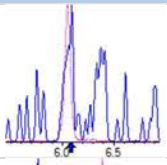
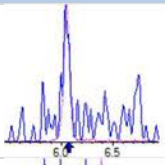
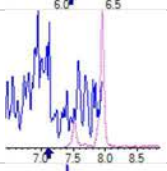
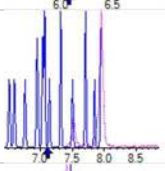
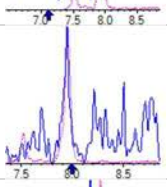
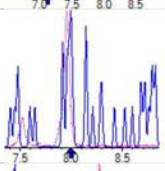
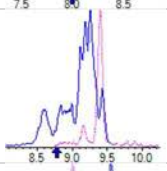
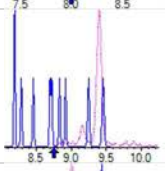
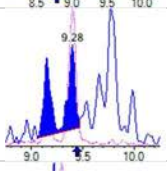
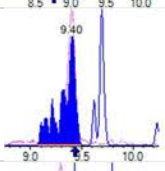
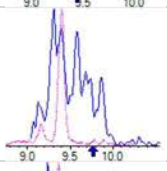
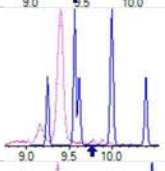
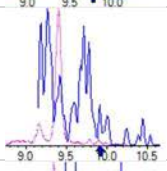
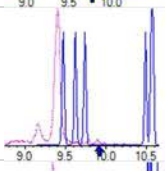
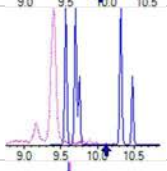
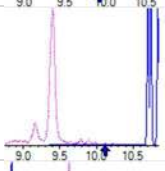
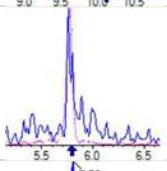
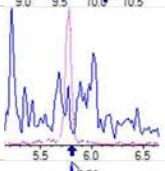
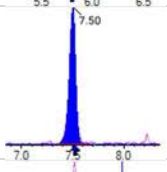
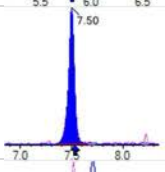
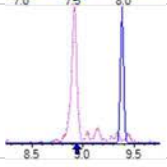
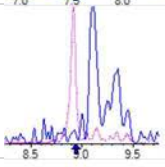
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) 3596 (262.9 / 69.0) 122	(4.96 , 1.00) (0.00 , N/A , 0.5)	37.7 3.5	0.0340 303.4 326.6	0.0274	N/A			
PFHxA	(313.0 / 269.0) 11518 (313.0 / 119.0) 1297	(6.10 , 1.00) (0.00 , N/A , -0.7)	41.8 14.7	0.1126 115.1 126.0	0.0432	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) 6497 (413.0 / 169.0) 1841	(7.83 , 1.00) (0.00 , N/A , -1.4)	69.4 1461.0	0.2834 86.7 95.8	0.0200	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) 4360 (513.0 / 169.0) N/A	(9.24 , 1.00) (-0.01 , N/A , #Value!)	28.6 N/A	N/A 0.0 0.0	0.0126	N/A			IR1,
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) 1079 (613.0 / 169.0) N/A	(9.87 , 1.00) (0.01 , N/A , #Value!)	101.8 N/A	N/A 0.0 0.0	0.0055	N/A			IR1,
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (24)
Acquired: 2022/12/22 - 16:19

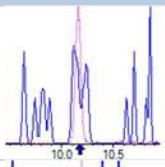
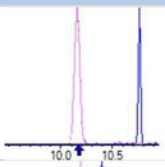
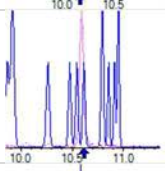
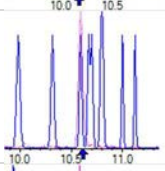
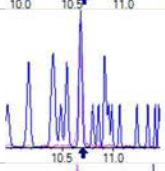
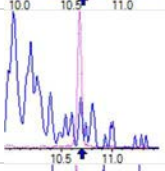
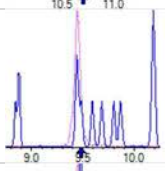
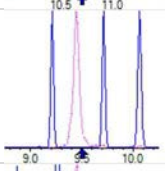
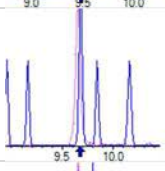
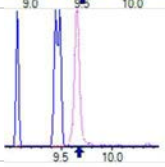
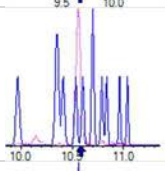
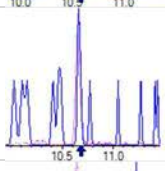
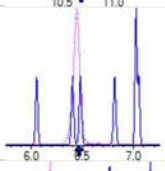
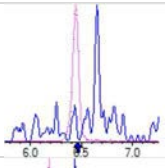
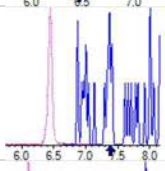
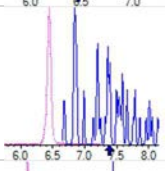
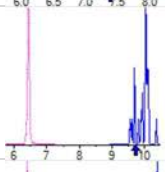
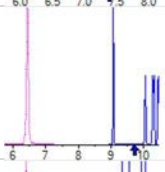
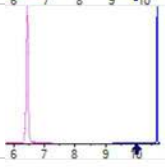
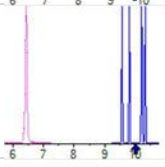
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) N/A (298.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 22922 (499.0 / 99.0) 5304	(9.28 , 0.99) (-0.12 , N/A , -7.6)	9.5 15.0	0.2314 95.2 101.2	0.0241	N/A			RT,MI5 DG 2022-12-27
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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(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) 585050 (427.0 / 81.0) 417131	(7.50 , 1.00) (0.00 , N/A , 0.0)	639.4 520.0	0.7130 91.6 102.3	3.4588	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (24)
Acquired: 2022/12/22 - 16:19

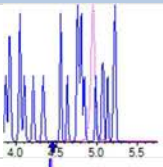
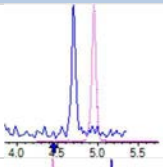
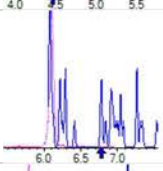
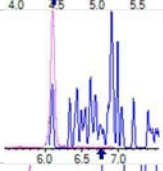
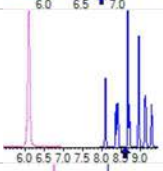
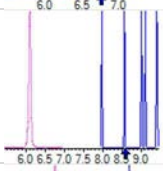
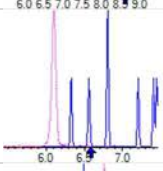
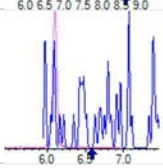
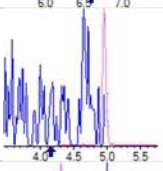
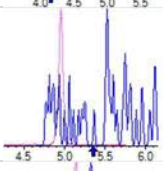
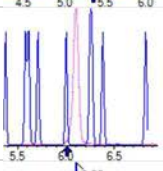
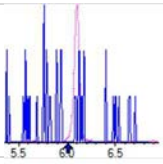
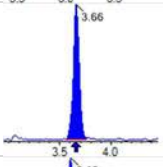
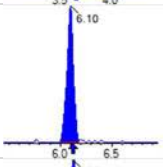
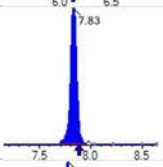
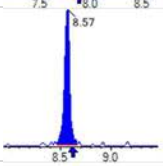
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (24)
Acquired: 2022/12/22 - 16:19

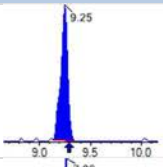
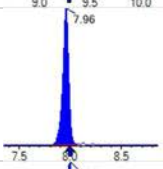
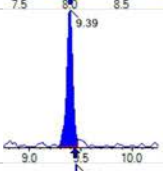
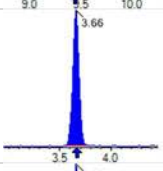
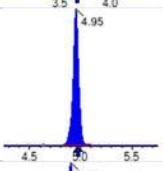
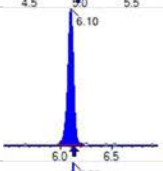
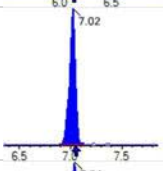
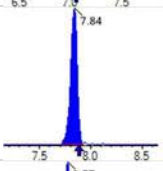
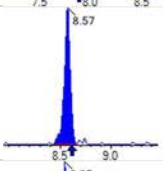
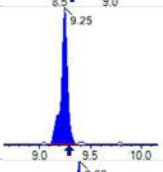
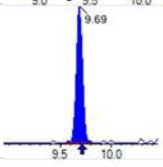
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 15292	(3.66 , N/A) (N/A , 0.01 , N/A)	246.8	N/A	1.0986 [1.0000]	109.9% { 9.7% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 31571	(6.10 , N/A) (N/A , -0.03 , N/A)	256.3	N/A	1.3672 [1.0000]	136.7% { 13.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 32269	(7.83 , N/A) (N/A , -0.04 , N/A)	334.5	N/A	1.4678 [1.0000]	146.8% { 12.6% }			
13C5_PFNA_IIS	(468.0 / 423.0) 22551	(8.57 , N/A) (N/A , -0.05 , N/A)	148.3	N/A	1.2178 [1.0000]	121.8% { 9.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (24)
Acquired: 2022/12/22 - 16:19

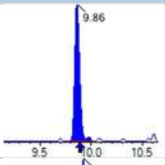
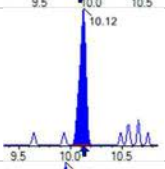
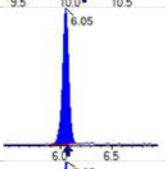
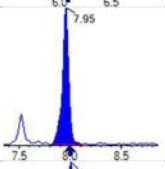
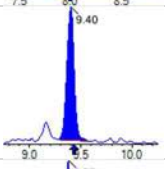
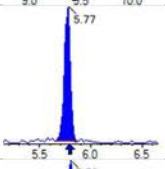
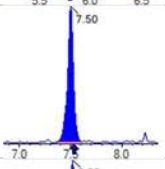
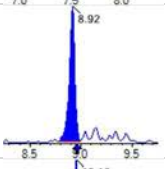
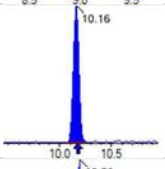
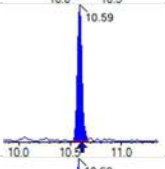
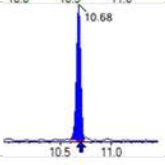
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 27995	(9.25 , N/A) (N/A , -0.04 , N/A)	198.8	N/A	1.5148 [1.0000]	151.5% { 15.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 54996	(7.96 , N/A) (N/A , -0.04 , N/A)	434.9	N/A	1.3623 [1.0000]	136.2% { 12.3% }			
13C4_PFOS_IIS	(502.8 / 79.9) 46132	(9.39 , N/A) (N/A , -0.05 , N/A)	93.1	N/A	1.4453 [1.0000]	144.5% { 13.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 27432	(3.66 , N/A) (N/A , 0.00 , N/A)	680.1	N/A	0.1743 [0.8000]	21.8% { 2.2% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 59798	(4.95 , N/A) (N/A , -0.01 , N/A)	468.1	N/A	0.2722 [0.4000]	68.1% { 8.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 62037	(6.10 , N/A) (N/A , -0.02 , N/A)	352.9	N/A	0.1708 [0.2000]	85.4% { 11.6% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 54046	(7.02 , N/A) (N/A , -0.03 , N/A)	445.3	N/A	0.1705 [0.2000]	85.3% { 12.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 66181	(7.84 , N/A) (N/A , -0.04 , N/A)	568.3	N/A	0.1870 [0.2000]	93.5% { 11.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 25527	(8.57 , N/A) (N/A , -0.04 , N/A)	184.3	N/A	0.1029 [0.1000]	102.9% { 11.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 36296	(9.25 , N/A) (N/A , -0.04 , N/A)	220.5	N/A	0.0912 [0.1000]	91.2% { 13.2% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 33952	(9.69 , N/A) (N/A , -0.02 , N/A)	153.2	N/A	0.0599 [0.1000]	59.9% { 9.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (24)
Acquired: 2022/12/22 - 16:19

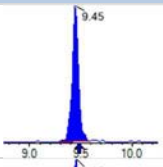
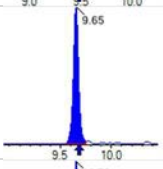
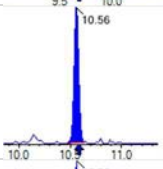
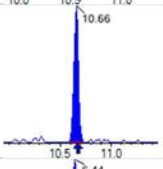
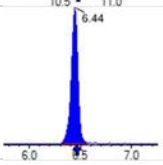
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 22674	(9.86 , N/A) (N/A , -0.03 , N/A)	124.3	N/A	0.0401 [0.1000]	40.1% { 6.2% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 6012	(10.12 , N/A) (N/A , 0.01 , N/A)	47.7	N/A	0.0160 [0.1000]	16.0% { 2.4% }			S1,
13C3_PFBS_EIS	(302.0 / 80.0) 167177	(6.05 , N/A) (N/A , -0.02 , N/A)	350.2	N/A	0.1798 [0.2000]	89.9% { 12.5% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 88874	(7.95 , N/A) (N/A , -0.04 , N/A)	161.1	N/A	0.1796 [0.2000]	89.8% { 11.6% }			
13C8_PFOS_EIS	(507.0 / 80.0) 175548	(9.40 , N/A) (N/A , -0.03 , N/A)	105.3	N/A	0.2217 [0.2000]	110.9% { 15.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 31652	(5.77 , N/A) (N/A , -0.02 , N/A)	164.5	N/A	0.4019 [0.4000]	100.5% { 14.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 44004	(7.50 , N/A) (N/A , -0.03 , N/A)	192.3	N/A	0.4641 [0.4000]	116.0% { 13.1% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 41517	(8.92 , N/A) (N/A , -0.03 , N/A)	80.7	N/A	0.4374 [0.4000]	109.3% { 13.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 107878	(10.16 , N/A) (N/A , -0.02 , N/A)	307.7	N/A	0.1078 [0.2000]	53.9% { 7.9% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 13976	(10.59 , N/A) (N/A , -0.02 , N/A)	177.8	N/A	0.0640 [0.2000]	32.0% { 4.9% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 10104	(10.68 , N/A) (N/A , -0.02 , N/A)	211.6	N/A	0.0501 [0.2000]	25.0% { 3.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-02RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (24)
Acquired: 2022/12/22 - 16:19

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 66496	(9.45 , N/A) (N/A , -0.04 , N/A)	188.0	N/A	0.3532 [0.4000]	88.3% { 12.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 73099	(9.65 , N/A) (N/A , -0.03 , N/A)	193.9	N/A	0.4405 [0.4000]	110.1% { 17.6% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 12071	(10.56 , N/A) (N/A , -0.01 , N/A)	164.1	N/A	0.3934 [2.0000]	19.7% { 2.8% }			S1,
D9_NEtFOSE_EIS	(639.2 / 58.9) 4977	(10.66 , N/A) (N/A , -0.02 , N/A)	164.1	N/A	0.3563 [2.0000]	17.8% { 2.5% }			S1,
13C3_HFPODA_EIS	(287.0 / 169.0) 120614	(6.44 , N/A) (N/A , -0.03 , N/A)	495.7	N/A	0.6244 [0.8000]	78.1% { 9.9% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW17D-WGN02B-2212W2

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0134-03	File ID:	S2022-12-22A (25)
Sampled:	12/16/22 13:35	Prepared:	12/20/22 15:01	Analyzed:	12/22/22 16:31
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	523.23 g / 2 ml			Instrument:	Saphira
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.76 U	1.5	0.76	0.20	
PFPEA	0.70 J	0.76	0.38	0.062	
PFHXA	0.83	0.38	0.19	0.052	IR2
PFHPA	0.20 J	0.38	0.19	0.039	
PFOA	0.36 J	0.38	0.19	0.15	
PFNA	0.14 J	0.38	0.19	0.078	IR2,
PFDA	0.16 J	0.38	0.19	0.097	IR1,
PFUnA	0.19 U	0.38	0.19	0.15	IR2,
PFDOA	0.19 U	0.38	0.19	0.11	IR2,
PFTRDA	0.29 U	0.38	0.29	0.19	
PFTEDA	0.19 U	0.38	0.19	0.19	
PFBS	0.11 J	0.38	0.19	0.035	
PFPES	0.19 U	0.38	0.19	0.060	
PFHXS	0.091 J	0.38	0.19	0.030	
PFHPS	0.19 U	0.38	0.19	0.049	
PFOS	0.53	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	54	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	0.10	
NMeFOSA	0.76 U	1.5	0.76	0.45	
NEtFOSA	0.76 U	1.5	0.76	0.39	
NMeFOSAA	0.19 U	0.38	0.19	0.10	
NEtFOSAA	0.19 U	0.38	0.19	0.11	
NMeFOSE	1.1 U	1.5	1.1	0.97	
NEtFOSE	1.1 U	1.5	1.1	1.0	
HFPO-DA	0.38 U	0.76	0.38	0.17	

FORM I
ANALYSIS DATA SHEET

AF-RHMW17D-WGN02B-2212W2

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0134-03	File ID:	S2022-12-22A (25)
Sampled:	12/16/22 13:35	Prepared:	12/20/22 15:01	Analyzed:	12/22/22 16:31
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	523.23 g / 2 ml			Instrument:	Saphira
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011

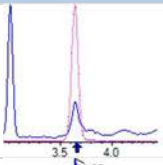
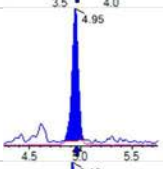
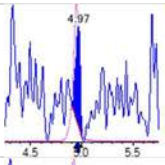
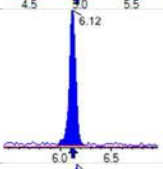
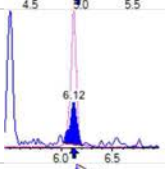
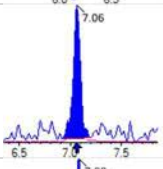
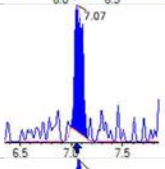
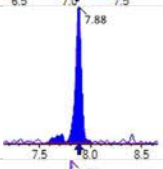
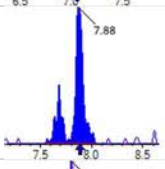
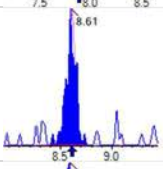
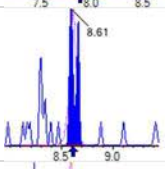
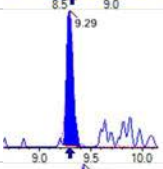
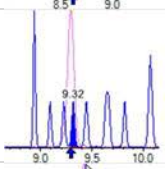
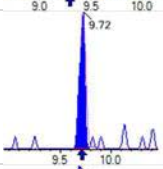
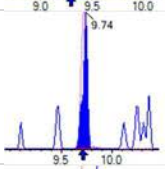
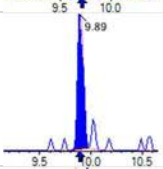
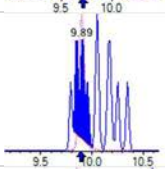
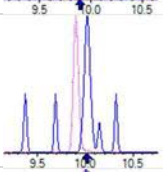
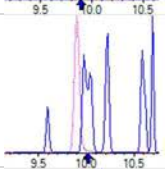
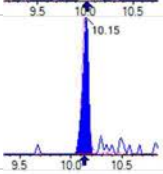
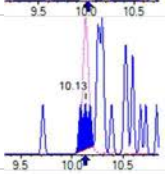
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.38 U	0.76	0.38	0.12	
PFEESA	0.38 U	0.76	0.38	0.10	
PFMPA	0.38 U	0.76	0.38	0.052	
PFMBA	0.38 U	0.76	0.38	0.087	
NFDHA	0.38 U	0.76	0.38	0.29	
9CL-PF3ONS	0.38 U	0.76	0.38	0.20	
11CL-PF3OUDS	0.38 U	0.76	0.38	0.20	
3:3FTCA	0.76 U	1.5	0.76	0.55	
5:3FTCA	0.76 U	1.5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

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (25)
Acquired: 2022/12/22 - 16:31

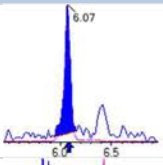
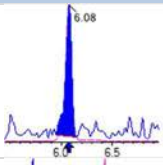
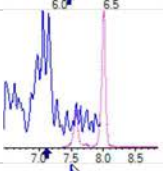
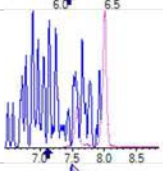
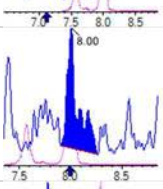
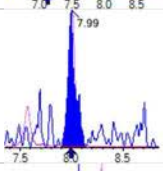
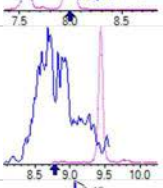
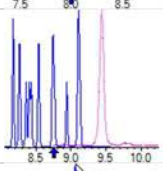
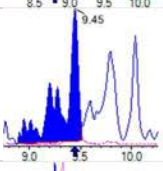
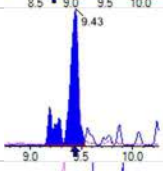
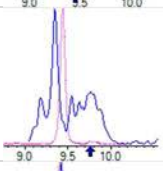
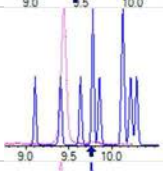
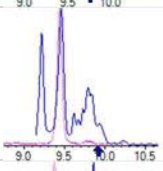
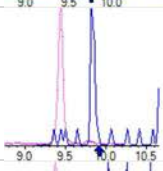
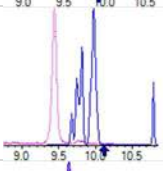
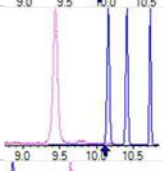
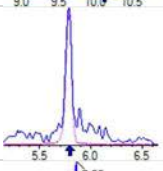
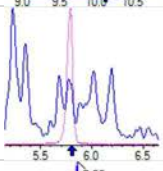
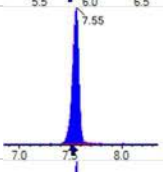
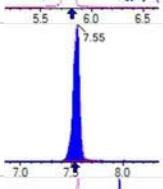
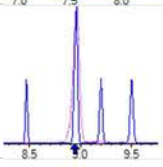
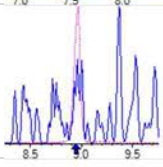
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) 31978 (262.9 / 69.0) 241	(4.95 , 1.00) (0.00 , N/A , -1.2)	107.3 7.5	0.0075 67.4 72.6	0.1843	N/A			
PFHxA	(313.0 / 269.0) 59180 (313.0 / 119.0) 8084	(6.12 , 1.00) (0.00 , N/A , -0.1)	164.5 18.4	0.1366 139.7 152.9	0.2159	N/A			IR2,
PFHpA	(363.0 / 319.0) 13842 (363.0 / 169.0) 3409	(7.06 , 1.00) (0.00 , N/A , -0.4)	39.5 18.1	0.2463 79.1 79.9	0.0524	N/A			
PFOA	(413.0 / 369.0) 29201 (413.0 / 169.0) 9638	(7.88 , 1.00) (0.00 , N/A , 0.3)	276.3 721.4	0.3301 101.0 111.6	0.0937	N/A			
PFNA	(463.0 / 419.0) 6991 (463.0 / 169.0) 2513	(8.61 , 1.00) (0.00 , N/A , -0.3)	93.5 15.2	0.3594 186.5 172.5	0.0356	N/A			IR2,
PFDA	(513.0 / 469.0) 8720 (513.0 / 169.0) 263	(9.29 , 1.00) (0.00 , N/A , -1.6)	33.0 4.1	0.0301 31.5 30.7	0.0419	N/A			IR1,
PFUnA	(563.0 / 519.0) 5289 (563.0 / 169.0) 2107	(9.72 , 1.00) (0.00 , N/A , -1.3)	40.2 27.4	0.3985 458.8 444.4	0.0145	N/A			IR2,
PFDoA	(613.0 / 569.0) 5790 (613.0 / 169.0) 1173	(9.89 , 1.00) (-0.01 , N/A , 0.5)	37.7 6.4	0.2026 145.5 154.1	0.0184	N/A			IR2,
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) 7850 (713.0 / 169.0) 813	(10.15 , 1.00) (0.01 , N/A , 1.4)	43.3 3.5	0.1035 50.9 50.4	0.0368	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (25)
Acquired: 2022/12/22 - 16:31

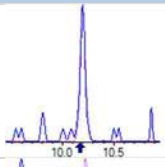
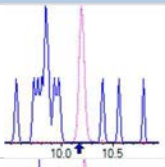
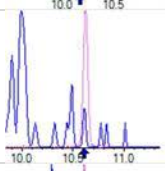
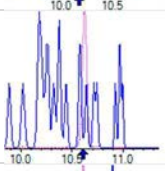
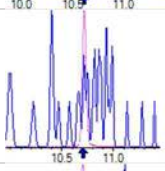
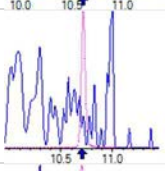
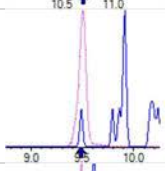
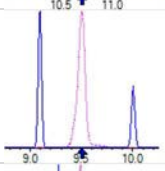
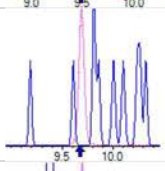
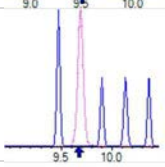
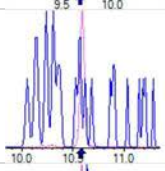
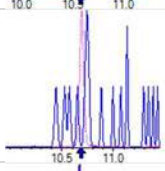
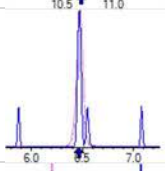
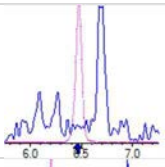
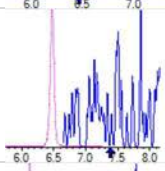
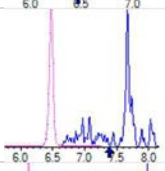
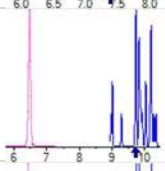
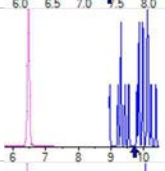
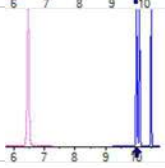
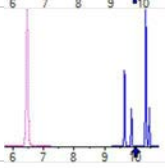
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 13477 (298.9 / 99.0) 9903	(6.07 , 1.00) (0.00 , N/A , -0.3)	45.8 41.1	0.7348 119.4 112.2	0.0282	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) 15085 (399.0 / 99.0) 4555	(8.00 , 1.00) (0.00 , N/A , 0.5)	24.4 66.7	0.3019 89.8 91.2	0.0238	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) 73721 (499.0 / 99.0) 14562	(9.45 , 1.00) (0.01 , N/A , 0.7)	15.6 28.1	0.1975 81.2 86.4	0.1382	N/A			MI5 DG 2022-12-27
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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(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) 3941847 (427.0 / 81.0) 3304111	(7.55 , 1.00) (0.01 , N/A , 0.3)	719.8 888.2	0.8382 107.7 120.2	14.0352	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (25)
Acquired: 2022/12/22 - 16:31

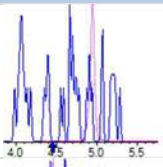
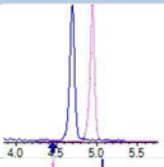
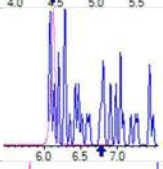
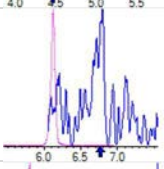
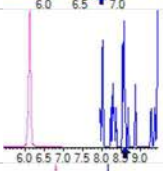
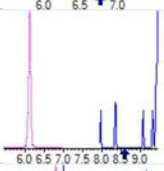
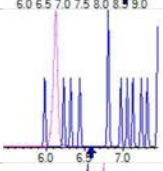
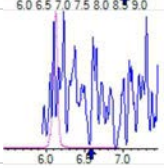
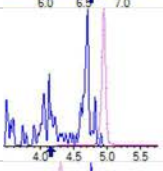
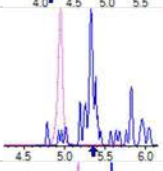
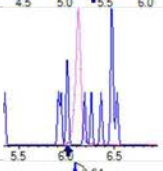
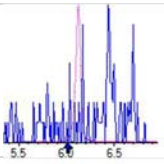
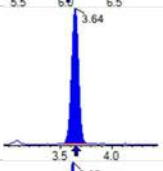
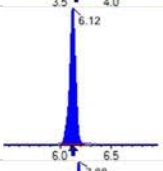
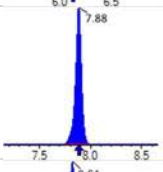
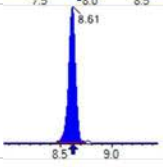
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (25)
Acquired: 2022/12/22 - 16:31

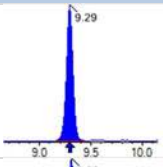
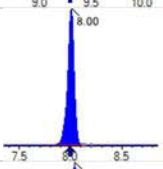
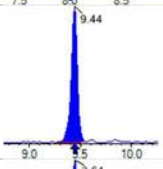
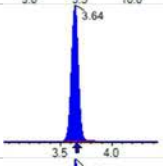
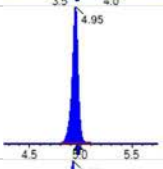
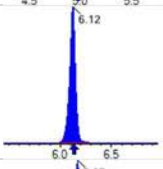
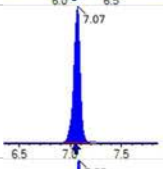
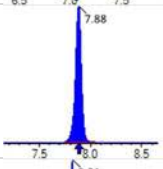
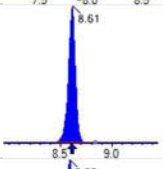
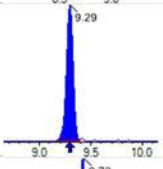
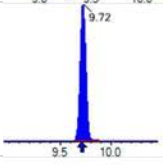
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 150400	(3.64 , N/A) (N/A , -0.01 , N/A)	392.4	N/A	1.0805 [1.0000]	108.1% { 95.8% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 305783	(6.12 , N/A) (N/A , 0.00 , N/A)	564.0	N/A	1.3242 [1.0000]	132.4% { 129.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 313950	(7.88 , N/A) (N/A , 0.01 , N/A)	990.3	N/A	1.4280 [1.0000]	142.8% { 122.2% }			
13C5_PFNA_IIS	(468.0 / 423.0) 230986	(8.61 , N/A) (N/A , 0.00 , N/A)	345.6	N/A	1.2473 [1.0000]	124.7% { 98.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (25)
Acquired: 2022/12/22 - 16:31

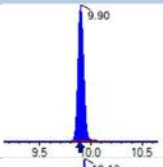
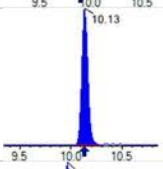
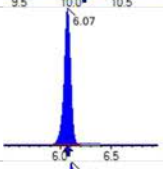
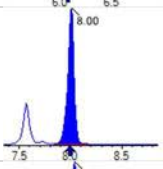
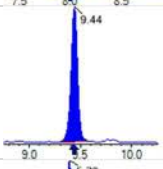
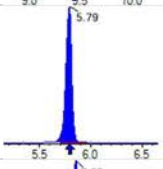
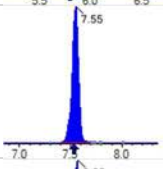
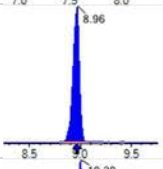
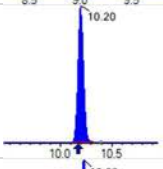
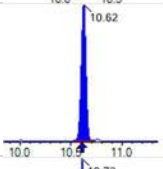
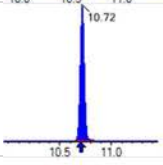
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 190222	(9.29 , N/A) (N/A , 0.00 , N/A)	309.3	N/A	1.0293 [1.0000]	102.9% { 101.6% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 501923	(8.00 , N/A) (N/A , 0.01 , N/A)	784.8	N/A	1.2433 [1.0000]	124.3% { 112.5% }			
13C4_PFOS_IIS	(502.8 / 79.9) 299314	(9.44 , N/A) (N/A , 0.00 , N/A)	200.2	N/A	0.9378 [1.0000]	93.8% { 86.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 726176	(3.64 , N/A) (N/A , -0.01 , N/A)	840.9	N/A	4.6912 [8.0000]	58.6% { 57.8% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 790330	(4.95 , N/A) (N/A , -0.02 , N/A)	688.4	N/A	3.7146 [4.0000]	92.9% { 116.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 638352	(6.12 , N/A) (N/A , 0.00 , N/A)	584.5	N/A	1.8141 [2.0000]	90.7% { 119.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 579798	(7.07 , N/A) (N/A , 0.01 , N/A)	539.0	N/A	1.8887 [2.0000]	94.4% { 128.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 634115	(7.88 , N/A) (N/A , 0.01 , N/A)	841.8	N/A	1.8418 [2.0000]	92.1% { 106.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 229011	(8.61 , N/A) (N/A , 0.00 , N/A)	518.8	N/A	0.9016 [1.0000]	90.2% { 98.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 218432	(9.29 , N/A) (N/A , 0.00 , N/A)	388.8	N/A	0.8074 [1.0000]	80.7% { 79.4% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 460121	(9.72 , N/A) (N/A , 0.01 , N/A)	390.0	N/A	1.1957 [1.0000]	119.6% { 123.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (25)
Acquired: 2022/12/22 - 16:31

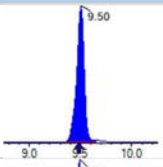
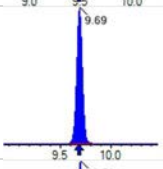
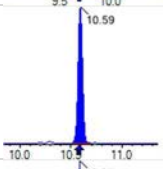
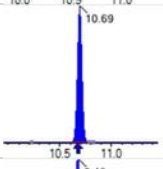
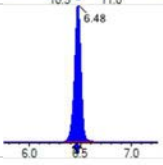
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 365155	(9.90 , N/A) (N/A , 0.01 , N/A)	594.0	N/A	0.9507 [1.0000]	95.1% { 99.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 240881	(10.13 , N/A) (N/A , 0.02 , N/A)	410.5	N/A	0.9443 [1.0000]	94.4% { 94.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1744052	(6.07 , N/A) (N/A , 0.00 , N/A)	446.3	N/A	2.0552 [2.0000]	102.8% { 130.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 814999	(8.00 , N/A) (N/A , 0.01 , N/A)	179.4	N/A	1.8050 [2.0000]	90.2% { 106.1% }			
13C8_PFOS_EIS	(507.0 / 80.0) 983092	(9.44 , N/A) (N/A , 0.01 , N/A)	211.4	N/A	1.9137 [2.0000]	95.7% { 88.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 666963	(5.79 , N/A) (N/A , 0.00 , N/A)	595.9	N/A	9.2793 [4.0000]	232.0% { 296.3% }			S2,
13C2_6:2FTS_EIS	(429.0 / 81.0) 730661	(7.55 , N/A) (N/A , 0.02 , N/A)	559.7	N/A	8.4434 [4.0000]	211.1% { 217.2% }			S2,
13C2_8:2FTS_EIS	(529.0 / 81.0) 598276	(8.96 , N/A) (N/A , 0.01 , N/A)	496.5	N/A	6.9063 [4.0000]	172.7% { 189.4% }			S2,
13C8_PFOSA_EIS	(506.0 / 78.0) 984515	(10.20 , N/A) (N/A , 0.02 , N/A)	672.7	N/A	1.5162 [2.0000]	75.8% { 72.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 125113	(10.62 , N/A) (N/A , 0.01 , N/A)	624.6	N/A	0.8825 [2.0000]	44.1% { 43.6% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 138806	(10.72 , N/A) (N/A , 0.02 , N/A)	691.4	N/A	1.0606 [2.0000]	53.0% { 45.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (25)
Acquired: 2022/12/22 - 16:31

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 439189	(9.50 , N/A) (N/A , 0.01 , N/A)	283.1	N/A	3.5954 [4.0000]	89.9% { 83.1% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 748274	(9.69 , N/A) (N/A , 0.01 , N/A)	711.2	N/A	6.9498 [4.0000]	173.7% { 180.3% }			S2,
D7_NMeFOSE_EIS	(623.2 / 58.9) 264626	(10.59 , N/A) (N/A , 0.02 , N/A)	477.4	N/A	13.2931 [20.0000]	66.5% { 60.9% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 86195	(10.69 , N/A) (N/A , 0.02 , N/A)	617.6	N/A	9.5110 [20.0000]	47.6% { 43.5% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1219105	(6.48 , N/A) (N/A , 0.01 , N/A)	989.4	N/A	6.5162 [8.0000]	81.5% { 100.2% }			

FORM I
ANALYSIS DATA SHEET

AF-RHMW17D-WGN02B-2212W2

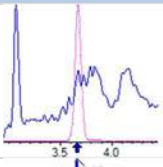
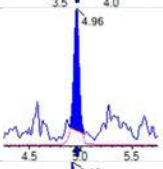
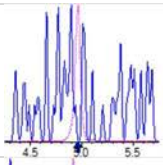
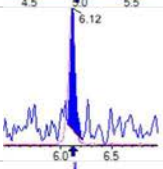
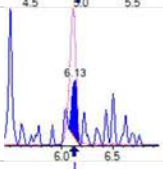
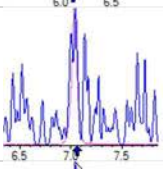
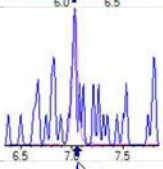
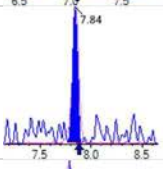
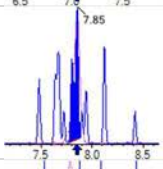
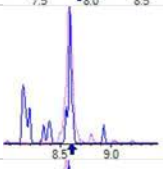
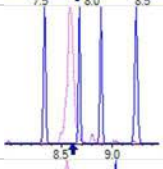
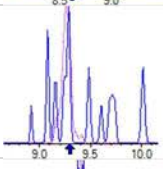
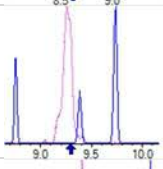
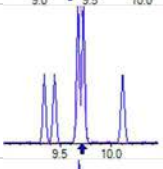
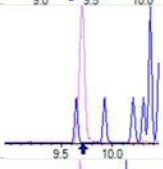
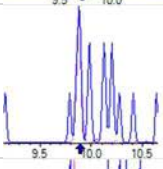
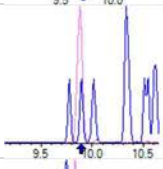
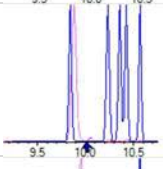
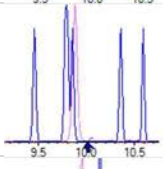
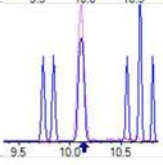
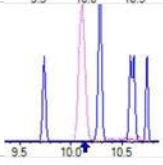
Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Laboratory ID:	22L0134-03RE1	File ID:	S2022-12-22A (26)
Sampled:	12/16/22 13:35	Prepared:	12/20/22 15:01	Analyzed:	12/22/22 16:44
Solids:		Preparation:	1633	Dilution:	1
Initial/Final:	523.23 g / 2 ml			Instrument:	Saphira
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (26)
Acquired: 2022/12/22 - 16:44

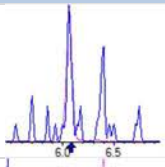
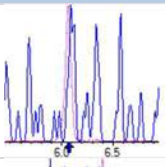
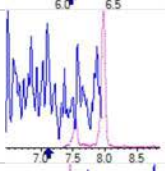
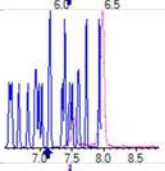
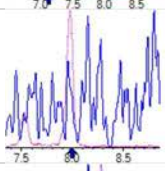
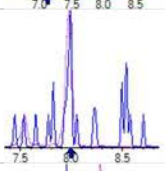
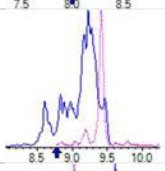
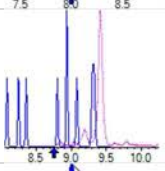
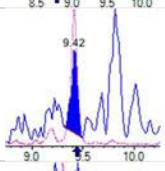
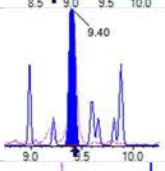
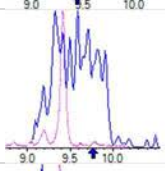
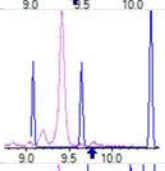
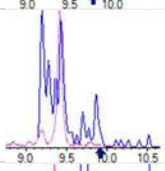
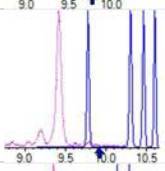
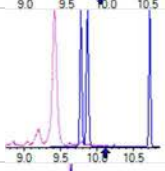
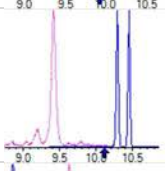
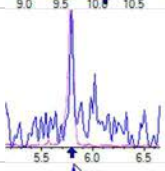
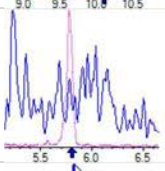
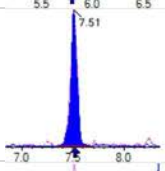
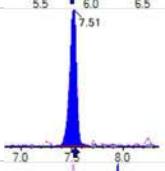
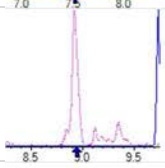
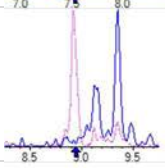
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) 3076 (262.9 / 69.0) N/A	(4.96 , 1.00) (0.00 , N/A , #Value!)	34.1 N/A	N/A 0.0 0.0	0.0162	N/A			
PFHxA	(313.0 / 269.0) 3808 (313.0 / 119.0) 1076	(6.12 , 1.00) (0.01 , N/A , -0.6)	19.5 8.0	0.2826 289.0 316.2	0.0126	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) 3634 (413.0 / 169.0) 647	(7.84 , 1.00) (-0.01 , N/A , -0.1)	22.1 16.2	0.1781 54.5 60.2	0.0101	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (26)
Acquired: 2022/12/22 - 16:44

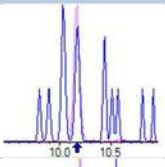
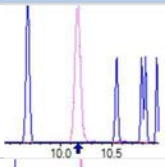
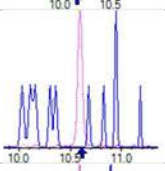
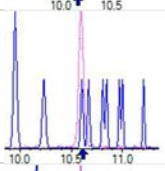
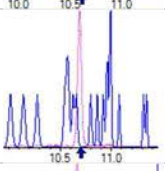
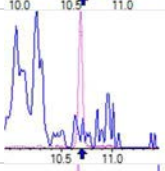
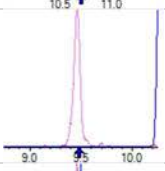
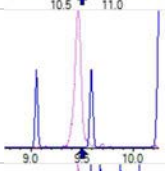
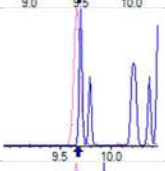
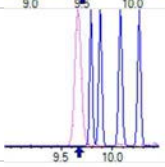
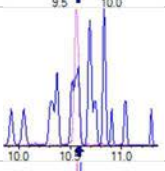
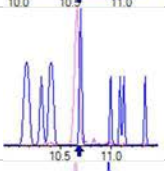
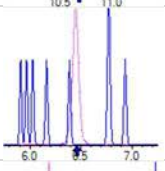
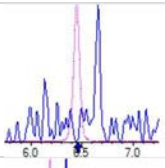
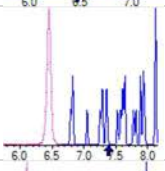
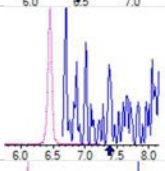
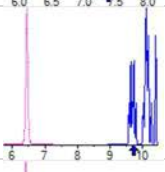
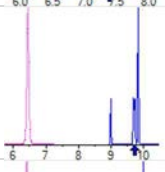
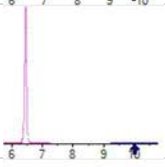
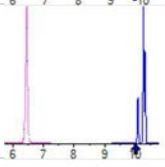
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) N/A (298.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 10288 (499.0 / 99.0) 2887	(9.42 , 1.00) (0.00 , N/A , 1.0)	11.3 18.0	0.2807 115.4 122.7	0.0084	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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(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) 235596 (427.0 / 81.0) 205685	(7.51 , 1.00) (0.00 , N/A , -0.3)	356.9 432.1	0.8730 112.2 125.2	1.4670	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (26)
Acquired: 2022/12/22 - 16:44

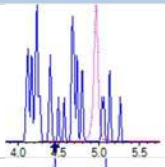
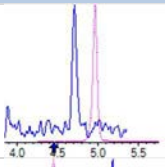
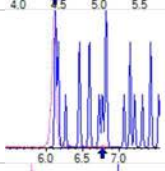
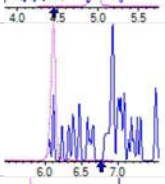
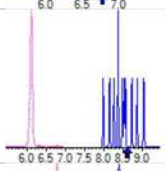
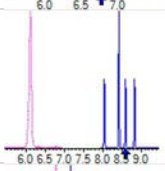
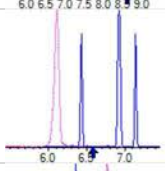
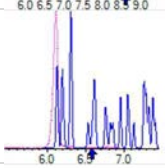
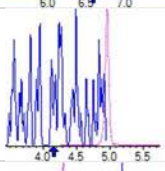
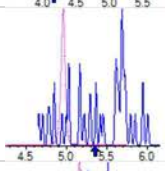
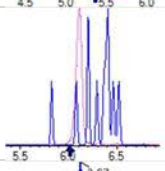
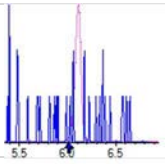
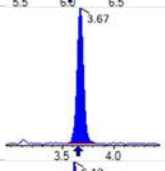
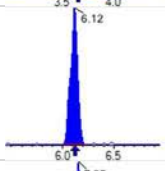
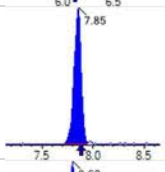
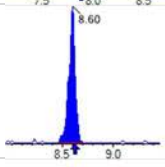
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (26)
Acquired: 2022/12/22 - 16:44

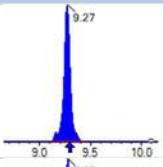
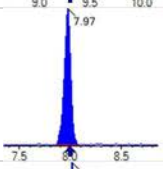
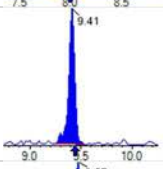
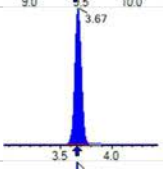
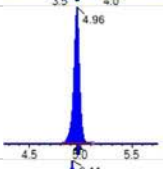
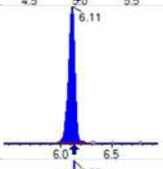
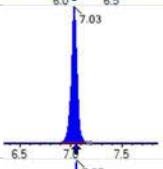
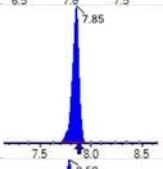
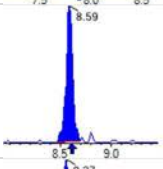
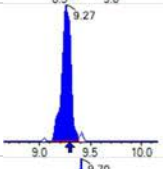
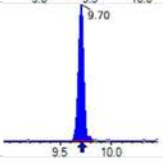
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 18957	(3.67 , N/A) (N/A , 0.02 , N/A)	277.2	N/A	1.3619 [1.0000]	136.2% { 12.1% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 34336	(6.12 , N/A) (N/A , -0.01 , N/A)	386.2	N/A	1.4869 [1.0000]	148.7% { 14.6% }			
13C4_PFOA_IIS	(417.0 / 372.0) 33989	(7.85 , N/A) (N/A , -0.02 , N/A)	372.3	N/A	1.5460 [1.0000]	154.6% { 13.2% }			
13C5_PFNA_IIS	(468.0 / 423.0) 27850	(8.60 , N/A) (N/A , -0.02 , N/A)	215.6	N/A	1.5040 [1.0000]	150.4% { 11.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (26)
Acquired: 2022/12/22 - 16:44

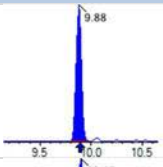
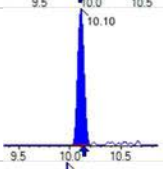
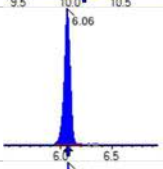
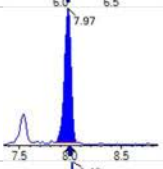
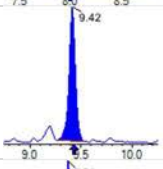
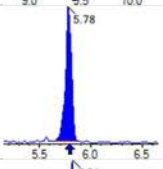
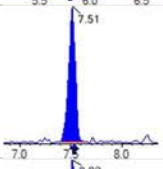
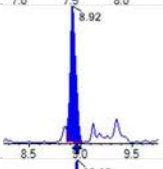
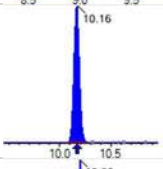
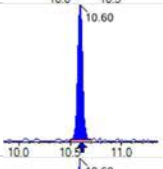
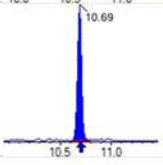
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 31359	(9.27 , N/A) (N/A , -0.02 , N/A)	370.5	N/A	1.6968 [1.0000]	169.7% { 16.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 59181	(7.97 , N/A) (N/A , -0.02 , N/A)	389.0	N/A	1.4659 [1.0000]	146.6% { 13.3% }			
13C4_PFOS_IIS	(502.8 / 79.9) 53577	(9.41 , N/A) (N/A , -0.03 , N/A)	114.6	N/A	1.6786 [1.0000]	167.9% { 15.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 84520	(3.67 , N/A) (N/A , 0.02 , N/A)	639.8	N/A	0.4332 [0.8000]	54.1% { 6.7% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 86255	(4.96 , N/A) (N/A , -0.01 , N/A)	574.0	N/A	0.3610 [0.4000]	90.3% { 12.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 70333	(6.11 , N/A) (N/A , -0.02 , N/A)	327.5	N/A	0.1780 [0.2000]	89.0% { 13.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 64004	(7.03 , N/A) (N/A , -0.02 , N/A)	460.0	N/A	0.1857 [0.2000]	92.8% { 14.2% }			
13C8_PFOA_EIS	(421.0 / 376.0) 73310	(7.85 , N/A) (N/A , -0.02 , N/A)	467.3	N/A	0.1967 [0.2000]	98.3% { 12.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 25877	(8.59 , N/A) (N/A , -0.02 , N/A)	162.0	N/A	0.0845 [0.1000]	84.5% { 11.2% }			
13C6_PFDA_EIS	(519.0 / 474.0) 39106	(9.27 , N/A) (N/A , -0.02 , N/A)	143.5	N/A	0.0877 [0.1000]	87.7% { 14.2% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 51929	(9.70 , N/A) (N/A , -0.01 , N/A)	321.8	N/A	0.0819 [0.1000]	81.9% { 14.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (26)
Acquired: 2022/12/22 - 16:44

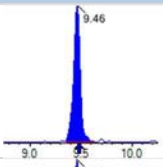
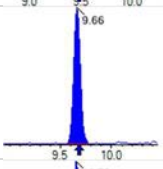
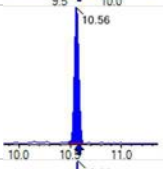
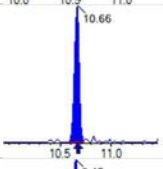
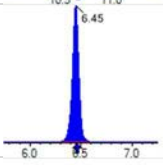
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 57571	(9.88 , N/A) (N/A , -0.01 , N/A)	264.4	N/A	0.0909 [0.1000]	90.9% { 15.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 29975	(10.10 , N/A) (N/A , -0.01 , N/A)	141.1	N/A	0.0713 [0.1000]	71.3% { 11.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 181195	(6.06 , N/A) (N/A , -0.01 , N/A)	446.1	N/A	0.1811 [0.2000]	90.5% { 13.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 98984	(7.97 , N/A) (N/A , -0.02 , N/A)	139.4	N/A	0.1859 [0.2000]	93.0% { 12.9% }			
13C8_PFOS_EIS	(507.0 / 80.0) 226091	(9.42 , N/A) (N/A , -0.02 , N/A)	109.5	N/A	0.2459 [0.2000]	122.9% { 20.2% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 34313	(5.78 , N/A) (N/A , -0.01 , N/A)	199.1	N/A	0.4049 [0.4000]	101.2% { 15.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 41781	(7.51 , N/A) (N/A , -0.02 , N/A)	163.8	N/A	0.4095 [0.4000]	102.4% { 12.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 44524	(8.92 , N/A) (N/A , -0.02 , N/A)	84.8	N/A	0.4359 [0.4000]	109.0% { 14.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 126066	(10.16 , N/A) (N/A , -0.01 , N/A)	277.4	N/A	0.1085 [0.2000]	54.2% { 9.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 17206	(10.60 , N/A) (N/A , -0.01 , N/A)	182.0	N/A	0.0678 [0.2000]	33.9% { 6.0% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 17734	(10.69 , N/A) (N/A , -0.01 , N/A)	265.1	N/A	0.0757 [0.2000]	37.9% { 5.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: 22L0134-03RE1@10
DF , IV: 1 , 1.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (26)
Acquired: 2022/12/22 - 16:44

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 96208	(9.46 , N/A) (N/A , -0.03 , N/A)	208.3	N/A	0.4400 [0.4000]	110.0% { 18.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 113580	(9.66 , N/A) (N/A , -0.02 , N/A)	247.9	N/A	0.5893 [0.4000]	147.3% { 27.4% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 31748	(10.56 , N/A) (N/A , -0.01 , N/A)	287.3	N/A	0.8910 [2.0000]	44.5% { 7.3% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 10466	(10.66 , N/A) (N/A , -0.01 , N/A)	195.0	N/A	0.6452 [2.0000]	32.3% { 5.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 149053	(6.45 , N/A) (N/A , -0.02 , N/A)	544.3	N/A	0.7095 [0.8000]	88.7% { 12.2% }			

QUALITY CONTROL

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0134
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW16-WGN01B-2212W2 (22L0134-01) ng/L	Lab File ID: S2022-12-22A (21)			Analyzed: 12/22/22 15:40
13C4-PFBA	32.0	86.2	20 - 150	
13C5-PFPEA	16.0	103	20 - 150	
13C5-PFHXA	8.01	102	20 - 150	
13C4-PFHPA	8.01	102	20 - 150	
13C8-PFOA	8.01	101	20 - 150	
13C9-PFNA	4.00	92.4	20 - 150	
13C6-PFDA	4.00	104	20 - 150	
13C7-PFUnA	4.00	88.0	20 - 150	
13C2-PFDOA	4.00	83.4	20 - 150	
13C2-PFTEDA	4.00	78.4	20 - 150	
13C3-PFBS	8.01	87.8	20 - 150	
13C3-PFHXS	8.01	93.9	20 - 150	
13C8-PFOS	8.01	81.2	20 - 150	
13C2-4:2FTS	16.0	146	20 - 150	
13C2-6:2FTS	16.0	145	20 - 150	
13C2-8:2FTS	16.0	161	20 - 150	*
13C8-PFOSA	8.01	54.1	20 - 150	
D5-NETFOSA	8.01	24.5	20 - 150	
D3-NMEFOSA	8.01	25.3	20 - 150	
D3-NMEFOSAA	16.0	92.7	20 - 150	
D5-NETFOSAA	16.0	93.0	20 - 150	
D7-NMEFOSE	80.1	32.2	20 - 150	
D9-NETFOSE	80.1	26.1	20 - 150	
13C3-HFPO-DA	32.0	84.4	20 - 150	
AF-RHMW16-WGN01B-2212W2 (22L0134-01RE1) ng/L	Lab File ID: S2022-12-22A (22)			Analyzed: 12/22/22 15:53
13C2-8:2FTS	16.0	104	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0134
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW17D-WGN01B-2212W2 (22L0134-02) ng/L	Lab File ID: S2022-12-22A (23)			Analyzed: 12/22/22 16:06
13C4-PFBA	31.2	21.7	20 - 150	
13C5-PFPEA	15.6	79.0	20 - 150	
13C5-PFHXA	7.81	85.3	20 - 150	
13C4-PFHPA	7.81	94.2	20 - 150	
13C8-PFOA	7.81	82.7	20 - 150	
13C9-PFNA	3.90	92.0	20 - 150	
13C6-PFDA	3.90	84.2	20 - 150	
13C7-PFUnA	3.90	72.5	20 - 150	
13C2-PFDOA	3.90	43.4	20 - 150	
13C2-PFTEDA	3.90	29.2	20 - 150	
13C3-PFBS	7.81	98.0	20 - 150	
13C3-PFHXS	7.81	89.6	20 - 150	
13C8-PFOS	7.81	88.6	20 - 150	
13C2-4:2FTS	15.6	202	20 - 150	*
13C2-6:2FTS	15.6	242	20 - 150	*
13C2-8:2FTS	15.6	161	20 - 150	*
13C8-PFOSA	7.81	49.9	20 - 150	
D5-NETFOSA	7.81	19.4	20 - 150	*
D3-NMEFOSA	7.81	19.5	20 - 150	*
D3-NMEFOSAA	15.6	68.6	20 - 150	
D5-NETFOSAA	15.6	118	20 - 150	
D7-NMEFOSE	78.1	19.2	20 - 150	*
D9-NETFOSE	78.1	13.1	20 - 150	*
13C3-HFPO-DA	31.2	73.9	20 - 150	
AF-RHMW17D-WGN01B-2212W2 (22L0134-02RE1) ng/L	Lab File ID: S2022-12-22A (24)			Analyzed: 12/22/22 16:19
13C2-4:2FTS	15.6	100	20 - 150	
13C2-6:2FTS	15.6	116	20 - 150	
13C2-8:2FTS	15.6	109	20 - 150	
D5-NETFOSA	7.81	25.0	20 - 150	
D3-NMEFOSA	7.81	32.0	20 - 150	
D7-NMEFOSE	78.1	19.7	20 - 150	*
D9-NETFOSE	78.1	17.8	20 - 150	*

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0134
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
AF-RHMW17D-WGN02B-2212W2 (22L0134-03) ng/L	Lab File ID: S2022-12-22A (25)			Analyzed: 12/22/22 16:31
13C4-PFBA	30.6	58.6	20 - 150	
13C5-PFPEA	15.3	92.9	20 - 150	
13C5-PFHXA	7.64	90.7	20 - 150	
13C4-PFHPA	7.64	94.4	20 - 150	
13C8-PFOA	7.64	92.1	20 - 150	
13C9-PFNA	3.82	90.2	20 - 150	
13C6-PFDA	3.82	80.7	20 - 150	
13C7-PFUnA	3.82	120	20 - 150	
13C2-PFDOA	3.82	95.1	20 - 150	
13C2-PFTEDA	3.82	94.4	20 - 150	
13C3-PFBS	7.64	103	20 - 150	
13C3-PFHXS	7.64	90.2	20 - 150	
13C8-PFOS	7.64	95.7	20 - 150	
13C2-4:2FTS	15.3	232	20 - 150	*
13C2-6:2FTS	15.3	211	20 - 150	*
13C2-8:2FTS	15.3	173	20 - 150	*
13C8-PFOSA	7.64	75.8	20 - 150	
D5-NETFOSA	7.64	53.0	20 - 150	
D3-NMEFOSA	7.64	44.1	20 - 150	
D3-NMEFOSAA	15.3	89.9	20 - 150	
D5-NETFOSAA	15.3	174	20 - 150	*
D7-NMEFOSE	76.4	66.5	20 - 150	
D9-NETFOSE	76.4	47.6	20 - 150	
13C3-HFPO-DA	30.6	81.5	20 - 150	
AF-RHMW17D-WGN02B-2212W2 (22L0134-03RE1) ng/L	Lab File ID: S2022-12-22A (26)			Analyzed: 12/22/22 16:44
13C2-4:2FTS	15.3	101	20 - 150	
13C2-6:2FTS	15.3	102	20 - 150	
13C2-8:2FTS	15.3	109	20 - 150	
D5-NETFOSAA	15.3	147	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0134
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
Blank (BBL0403-BLK1) ng/L	Lab File ID: S2022-12-22A (18)			Analyzed: 12/22/22 15:02
13C4-PFBA	32.0	94.6	20 - 150	
13C5-PFPEA	16.0	94.3	20 - 150	
13C5-PFHXA	8.00	92.2	20 - 150	
13C4-PFHPA	8.00	90.7	20 - 150	
13C8-PFOA	8.00	96.2	20 - 150	
13C9-PFNA	4.00	96.0	20 - 150	
13C6-PFDA	4.00	89.8	20 - 150	
13C7-PFUnA	4.00	91.8	20 - 150	
13C2-PFDOA	4.00	106	20 - 150	
13C2-PFTEDA	4.00	78.0	20 - 150	
13C3-PFBS	8.00	86.3	20 - 150	
13C3-PFHXS	8.00	89.7	20 - 150	
13C8-PFOS	8.00	86.4	20 - 150	
13C2-4:2FTS	16.0	89.3	20 - 150	
13C2-6:2FTS	16.0	111	20 - 150	
13C2-8:2FTS	16.0	87.3	20 - 150	
13C8-PFOSA	8.00	80.7	20 - 150	
D5-NETFOSA	8.00	31.7	20 - 150	
D3-NMEFOSA	8.00	38.2	20 - 150	
D3-NMEFOSAA	16.0	73.5	20 - 150	
D5-NETFOSAA	16.0	82.3	20 - 150	
D7-NMEFOSE	80.0	59.6	20 - 150	
D9-NETFOSE	80.0	59.9	20 - 150	
13C3-HFPO-DA	32.0	89.1	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0134
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
LCS (BBL0403-BS1) ng/L	Lab File ID: S2022-12-22A (19)			Analyzed: 12/22/22 15:15
13C4-PFBA	32.0	97.0	20 - 150	
13C5-PFPEA	16.0	109	20 - 150	
13C5-PFHXA	8.00	98.6	20 - 150	
13C4-PFHPA	8.00	107	20 - 150	
13C8-PFOA	8.00	97.1	20 - 150	
13C9-PFNA	4.00	98.3	20 - 150	
13C6-PFDA	4.00	74.0	20 - 150	
13C7-PFUnA	4.00	71.8	20 - 150	
13C2-PFDOA	4.00	74.6	20 - 150	
13C2-PFTEDA	4.00	73.1	20 - 150	
13C3-PFBS	8.00	88.0	20 - 150	
13C3-PFHXS	8.00	95.3	20 - 150	
13C8-PFOS	8.00	95.5	20 - 150	
13C2-4:2FTS	16.0	85.2	20 - 150	
13C2-6:2FTS	16.0	89.2	20 - 150	
13C2-8:2FTS	16.0	88.4	20 - 150	
13C8-PFOSA	8.00	84.2	20 - 150	
D5-NETFOSA	8.00	25.5	20 - 150	
D3-NMEFOSA	8.00	28.0	20 - 150	
D3-NMEFOSAA	16.0	86.5	20 - 150	
D5-NETFOSAA	16.0	83.3	20 - 150	
D7-NMEFOSE	80.0	45.0	20 - 150	
D9-NETFOSE	80.0	48.2	20 - 150	
13C3-HFPO-DA	32.0	102	20 - 150	

SURROGATE SUMMARY SHEET

EPA 1633

Client: AECOM
Work Order: 22L0134
Project: Red Hill AFFF Assessment Sampling

Surrogate Compound	Spike level	% Recovery	Recovery Limits	Q
MRL Check (BBL0403-MRL1) ng/L	Lab File ID: S2022-12-22A (20)			Analyzed: 12/22/22 15:28
13C4-PFBA	32.0	95.9	20 - 150	
13C5-PFPEA	16.0	102	20 - 150	
13C5-PFHXA	8.00	88.6	20 - 150	
13C4-PFHPA	8.00	108	20 - 150	
13C8-PFOA	8.00	108	20 - 150	
13C9-PFNA	4.00	102	20 - 150	
13C6-PFDA	4.00	97.4	20 - 150	
13C7-PFUnA	4.00	87.5	20 - 150	
13C2-PFDOA	4.00	93.9	20 - 150	
13C2-PFTEDA	4.00	102	20 - 150	
13C3-PFBS	8.00	84.5	20 - 150	
13C3-PFHXS	8.00	90.1	20 - 150	
13C8-PFOS	8.00	90.4	20 - 150	
13C2-4:2FTS	16.0	83.8	20 - 150	
13C2-6:2FTS	16.0	95.2	20 - 150	
13C2-8:2FTS	16.0	74.1	20 - 150	
13C8-PFOSA	8.00	59.4	20 - 150	
D5-NETFOSA	8.00	20.1	20 - 150	
D3-NMEFOSA	8.00	23.9	20 - 150	
D3-NMEFOSAA	16.0	71.7	20 - 150	
D5-NETFOSAA	16.0	86.1	20 - 150	
D7-NMEFOSE	80.0	33.6	20 - 150	
D9-NETFOSE	80.0	33.0	20 - 150	
13C3-HFPO-DA	32.0	99.4	20 - 150	

METHOD BLANK SUMMARY

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0134
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Blank ID:	BBL0403-BLK1	Batch:	BBL0403
Prepared:	12/20/2022 15:01		

Client Sample ID	Laboratory Sample ID	Lab File ID	Time Analyzed
LCS	BBL0403-BS1	S2022-12-22A (19)	15:15
MRL Check	BBL0403-MRL1	S2022-12-22A (20)	15:28
AF-RHMW16-WGN01B-2212W2	22L0134-01	S2022-12-22A (21)	15:40
DF 10	22L0134-01RE1	S2022-12-22A (22)	15:53
AF-RHMW17D-WGN01B-2212W2	22L0134-02	S2022-12-22A (23)	16:06
DF 10	22L0134-02RE1	S2022-12-22A (24)	16:19
AF-RHMW17D-WGN02B-2212W2	22L0134-03	S2022-12-22A (25)	16:31
DF 10	22L0134-03RE1	S2022-12-22A (26)	16:44

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BBL0403-BLK1	File ID:	S2022-12-22A (18)
Sampled:		Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:02
Solids:		Preparation:	1633	Dilution:	1
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011
Column:	1			Instrument:	Saphira

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.80 U	1.6	0.80	0.21	U
PFPEA	0.40 U	0.80	0.40	0.065	U
PFHXA	0.20 U	0.40	0.20	0.055	U
PFHPA	0.20 U	0.40	0.20	0.041	U
PFOA	0.20 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	0.0863 J	0.40	0.20	0.064	J
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:	22L0134
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BBL0403-BLK1	File ID:	S2022-12-22A (18)
Sampled:		Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:02
Solids:		Preparation:	1633	Dilution:	1
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011
Column:	1				

Instrument: Saphira

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:	22L0134
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Preparation:	1633
Batch:	BBL0403	Laboratory ID:	BBL0403-BS1
Column:			

ANALYTE	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC.	QC LIMITS REC.
PFBA	16.0	16.1	101	40 - 150
PFPEA	8.00	7.93	99.1	40 - 150
PFHXA	4.00	4.27	107	40 - 150
PFHPA	4.00	3.87	96.8	40 - 150
PFOA	4.00	3.50	87.6	40 - 150
PFNA	4.00	3.90	97.5	40 - 150
PFDA	4.00	4.33	108	40 - 150
PFUnA	4.00	4.74	119	40 - 150
PFDOA	4.00	3.75	93.8	40 - 150
PFTRDA	4.00	3.68	92.0	40 - 150
PFTEDA	4.00	4.31	108	40 - 150
PFBS	3.54	3.64	103	40 - 150
PFPES	3.76	3.56	94.6	40 - 150
PFHXS	3.66	3.53	96.5	40 - 150
PFHPS	3.82	3.57	93.4	40 - 150
PFOS	3.72	3.24	87.1	40 - 150
PFNS	3.84	3.62	94.4	40 - 150
PFDS	3.86	3.46	89.5	40 - 150
PFDOS	3.88	3.24	83.4	40 - 150
4:2FTS	15.0	13.2	87.8	40 - 150
6:2FTS	15.2	15.2	99.7	40 - 150
8:2FTS	15.4	14.7	95.7	40 - 150
PFOSA	4.00	3.46	86.6	40 - 150
NMeFOSA	16.0	18.4	115	40 - 150
NEtFOSA	16.0	16.9	106	40 - 150
NMeFOSAA	4.00	3.87	96.7	40 - 150
NEtFOSAA	4.00	3.84	96.0	40 - 150
NMeFOSE	16.0	17.8	111	40 - 150
NEtFOSE	16.0	15.8	98.7	40 - 150
HFPO-DA	8.00	7.61	95.1	40 - 150
ADONA	7.56	7.89	104	40 - 150
PFEESA	7.12	7.00	98.3	40 - 150
PFMPA	8.00	8.31	104	40 - 150
PFMBA	8.00	7.54	94.3	40 - 150

LCS / LCS DUPLICATE RECOVERY

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0134
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Matrix:	Water	Preparation:	1633
Batch:	BBL0403	Laboratory ID:	BBL0403-BS1
Column:			

ANALYTE	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC.	QC LIMITS REC.
NFDHA	8.00	8.29	104	40 - 150
9CL-PF3ONS	7.48	6.81	91.0	40 - 150
11CL-PF3OUDS	7.56	7.94	105	40 - 150
3:3FTCA	16.0	17.4	109	40 - 150
5:3FTCA	16.0	17.2	108	40 - 150
7:3FTCA	16.0	17.9	112	40 - 150

CALIBRATION SUMMARY

Chemist:ABK
Instrument:Saphira
Type:Sciex Q5500

Quant Method:163

Analyte	(Q1 / Q3)	Internal Standard	Multiplier	AcidFactor	Function	Qualifier
PFBA	(212.9 / 169.0)	13C4_PFBA_EIS	4.0000	1.0000	y = 0.32619 x (std. dev. = 0.01628) (weighting: None)	%RSE=5.0
PFPeA	(262.9 / 219.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.43913 x (std. dev. = 0.01863) (weighting: None)	%RSE=4.2
PFHxA	(313.0 / 269.0)	13C5_PFHxA_EIS	1.0000	1.0000	y = 0.42941 x (std. dev. = 0.01769) (weighting: None)	%RSE=4.1
PFHpA	(363.0 / 319.0)	13C4_PFHpA_EIS	1.0000	1.0000	y = 0.45577 x (std. dev. = 0.01668) (weighting: None)	%RSE=3.7
PFOA	(413.0 / 369.0)	13C8_PFOA_EIS	1.0000	1.0000	y = 0.49169 x (std. dev. = 0.02929) (weighting: None)	%RSE=6.0
PFNA	(463.0 / 419.0)	13C9_PFNA_EIS	1.0000	1.0000	y = 0.85807 x (std. dev. = 0.06798) (weighting: None)	%RSE=7.9
PFDA	(513.0 / 469.0)	13C6_PFDA_EIS	1.0000	1.0000	y = 0.95185 x (std. dev. = 0.07020) (weighting: None)	%RSE=7.4
PFUnA	(563.0 / 519.0)	13C7_PFUnA_EIS	1.0000	1.0000	y = 0.79028 x (std. dev. = 0.12920) (weighting: None)	%RSE=16.3
PFDoA	(613.0 / 569.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.86208 x (std. dev. = 0.12117) (weighting: None)	%RSE=14.1
PFTrDA	(663.0 / 619.0)	13C2_PFDoA_EIS	1.0000	1.0000	y = 0.74691 x (std. dev. = 0.10467) (weighting: None)	%RSE=14.0
PFTeDA	(713.0 / 669.0)	13C2_PFTeDA_EIS	1.0000	1.0000	y = 0.88627 x (std. dev. = 0.09361) (weighting: None)	%RSE=10.6
PFBS	(298.9 / 80.0)	13C3_PFBS_EIS	1.0000	0.8847	y = 0.24253 x (std. dev. = 0.01275) (weighting: None)	%RSE=5.3
PFPeS	(349.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9384	y = 0.83819 x (std. dev. = 0.04088) (weighting: None)	%RSE=4.9
PFHxS	(399.0 / 80.0)	13C3_PFHxS_EIS	1.0000	0.9110	y = 0.70765 x (std. dev. = 0.03393) (weighting: None)	%RSE=4.8
PFHpS	(449.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9514	y = 0.41508 x (std. dev. = 0.03452) (weighting: None)	%RSE=8.3
PFOS	(499.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9275	y = 0.50337 x (std. dev. = 0.03410) (weighting: None)	%RSE=6.8
PFNS	(549.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9599	y = 0.57789 x (std. dev. = 0.04314) (weighting: None)	%RSE=7.5
PFDS	(599.0 / 80.0)	13C8_PFOS_EIS	1.0000	0.9631	y = 0.64371 x (std. dev. = 0.05256) (weighting: None)	%RSE=8.2
PFDoS	(698.9 / 80.0)	13C8_PFOS_EIS	1.0000	0.9696	y = 0.27084 x (std. dev. = 0.02152) (weighting: None)	%RSE=7.9
4:2FTS	(327.0 / 307.0)	13C2_4:2FTS_EIS	4.0000	0.9345	y = 3.09002 x (std. dev. = 0.26815) (weighting: None)	%RSE=8.7
6:2FTS	(427.0 / 407.0)	13C2_6:2FTS_EIS	4.0000	0.9490	y = 1.45919 x (std. dev. = 0.11873) (weighting: None)	%RSE=8.1
8:2FTS	(527.0 / 507.0)	13C2_8:2FTS_EIS	4.0000	0.9583	y = 1.51823 x (std. dev. = 0.27229) (weighting: None)	%RSE=17.9
PFOSA	(498.0 / 78.0)	13C8_PFOSA_EIS	1.0000	1.0000	y = 0.47254 x (std. dev. = 0.03538) (weighting: None)	%RSE=7.5
NMeFOSA	(511.9 / 219.0)	D3_NMeFOSA_EIS	4.0000	1.0000	y = 1.63031 x (std. dev. = 0.18278) (weighting: None)	%RSE=11.2
NEtFOSA	(526.0 / 219.0)	D5_NEtFOSA_EIS	4.0000	1.0000	y = 1.80404 x (std. dev. = 0.10773) (weighting: None)	%RSE=6.0
NMeFOSAA	(570.0 / 419.0)	D3_MeFOSAA_EIS	1.0000	1.0000	y = 0.19482 x (std. dev. = 0.02187) (weighting: None)	%RSE=11.2
NEtFOSAA	(584.0 / 419.0)	D5_EtFOSAA_EIS	1.0000	1.0000	y = 0.22445 x (std. dev. = 0.03244) (weighting: None)	%RSE=14.5
NMeFOSE	(616.1 / 59.0)	D7_NMeFOSE_EIS	4.0000	1.0000	y = 0.25244 x (std. dev. = 0.02362) (weighting: None)	%RSE=9.4
NEtFOSE	(630.0 / 59.0)	D9_NEtFOSE_EIS	4.0000	1.0000	y = 0.10241 x (std. dev. = 0.01427) (weighting: None)	%RSE=13.9
HFPO-DA	(285.0 / 169.0)	13C3_HFPODA_EIS	2.0000	1.0000	y = 0.15195 x (std. dev. = 0.00913) (weighting: None)	%RSE=6.0
ADONA	(377.0 / 85.0)	13C3_HFPODA_EIS	2.0000	0.9427	y = 0.63625 x (std. dev. = 0.02798) (weighting: None)	%RSE=4.4
9Cl-Pf3ONS	(531.0 / 351.0)	13C3_HFPODA_EIS	2.0000	0.9333	y = -0.01255 x^2 + 1.77065 x + 0.01174 (r = 0.99899) (weighting: 1 / x^2)	%RSE=4.6
11Cl-PF3OUDS	(631.0 / 451.0)	13C3_HFPODA_EIS	2.0000	0.9432	y = 0.88975 x (std. dev. = 0.09345) (weighting: None)	%RSE=10.5
3:3FTCA	(241.0 / 177.0)	13C5_PFPeA_EIS	4.0000	1.0000	y = 0.03031 x (std. dev. = 0.00217) (weighting: None)	%RSE=7.2
5:3FTCA	(341.0 / 236.7)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.30350 x (std. dev. = 0.02546) (weighting: None)	%RSE=8.4
7:3FTCA	(441.0 / 317.0)	13C5_PFHxA_EIS	4.0000	1.0000	y = 0.34922 x (std. dev. = 0.01514) (weighting: None)	%RSE=4.3
PFEESA	(315.0 / 135.0)	13C5_PFHxA_EIS	2.0000	0.8925	y = 0.83914 x (std. dev. = 0.06120) (weighting: None)	%RSE=7.3
PFMPA	(229.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.12052 x (std. dev. = 0.00587) (weighting: None)	%RSE=4.9
PFMBA	(279.0 / 85.0)	13C5_PFPeA_EIS	2.0000	1.0000	y = 0.41658 x (std. dev. = 0.00844) (weighting: None)	%RSE=2.0
NFDHA	(295.0 / 201.0)	13C5_PFHxA_EIS	2.0000	1.0000	y = 0.43305 x (std. dev. = 0.01639) (weighting: None)	%RSE=3.8
13C3_PFBA_IIS	(216.0 / 172.0)	13C3_PFBA_IIS	1.0000	1.0000	y = 139193.5476 x	%RSD=8.2
13C2_PFHxA_IIS	(315.1 / 270.0)	13C2_PFHxA_IIS	1.0000	1.0000	y = 230918.4261 x	%RSD=8.2
13C4_PFOA_IIS	(417.0 / 372.0)	13C4_PFOA_IIS	1.0000	1.0000	y = 219848.0773 x	%RSD=7.7
13C5_PFNA_IIS	(468.0 / 423.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 185181.4072 x	%RSD=9.2
13C2_PFDA_IIS	(515.1 / 470.1)	13C2_PFDA_IIS	1.0000	1.0000	y = 184809.0456 x	%RSD=11.0
18O2_PFHxS_IIS	(403.0 / 83.9)	18O2_PFHxS_IIS	1.0000	1.0000	y = 403709.6695 x	%RSD=4.9
13C4_PFOS_IIS	(502.8 / 79.9)	13C4_PFOS_IIS	1.0000	1.0000	y = 319178.8209 x	%RSD=6.9

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 = 8.2337 x	%RSD=3.2
13C5_PFPeA_EIS	(267.9 / 223.0)	13C2_PFHxA_IIS	4.0000	1.0000	y = 2.7832 x	%RSD=7.7
13C5_PFHxA_EIS	(318.0 / 273.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 2.3015 x	%RSD=6.9
13C4_PFHpA_EIS	(367.0 / 322.0)	13C2_PFHxA_IIS	2.0000	1.0000	y = 2.0078 x	%RSD=6.4
13C8_PFOA_EIS	(421.0 / 376.0)	13C4_PFOA_IIS	2.0000	1.0000	y = 2.1933 x	%RSD=5.9
13C9_PFNA_EIS	(472.0 / 427.0)	13C5_PFNA_IIS	1.0000	1.0000	y = 1.0996 x	%RSD=3.4
13C6_PFDA_EIS	(519.0 / 474.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.4222 x	%RSD=14.3
13C7_PFUnA_EIS	(570.0 / 525.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 2.0230 x	%RSD=15.9
13C2_PFDoA_EIS	(615.0 / 570.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 2.0192 x	%RSD=15.8
13C2_PFTeDA_EIS	(715.0 / 670.0)	13C2_PFDA_IIS	1.0000	1.0000	y = 1.3410 x	%RSD=16.6
13C3_PFBS_EIS	(302.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 3.3815 x	%RSD=8.1
13C3_PFHxS_EIS	(402.0 / 80.0)	18O2_PFHxS_IIS	2.0000	1.0000	y = 1.7992 x	%RSD=5.5
13C8_PFOS_EIS	(507.0 / 80.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 3.4325 x	%RSD=6.1
13C2_4:2FTS_EIS	(329.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.5728 x	%RSD=7.1
13C2_6:2FTS_EIS	(429.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.6896 x	%RSD=7.7
13C2_8:2FTS_EIS	(529.0 / 81.0)	18O2_PFHxS_IIS	4.0000	1.0000	y = 0.6904 x	%RSD=7.1
13C8_PFOSA_EIS	(506.0 / 78.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 4.3389 x	%RSD=5.1
D3_NMeFOSA_EIS	(515.0 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.9473 x	%RSD=12.5
D5_NEtFOSA_EIS	(531.1 / 169.0)	13C4_PFOS_IIS	2.0000	1.0000	y = 0.8745 x	%RSD=6.8
D3_MeFOSAA_EIS	(573.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 1.6324 x	%RSD=5.4
D5_EtFOSAA_EIS	(589.0 / 419.0)	13C4_PFOS_IIS	4.0000	1.0000	y = 1.4389 x	%RSD=12.4
D7_NMeFOSE_EIS	(623.2 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 1.3302 x	%RSD=9.0
D9_NEtFOSE_EIS	(639.2 / 58.9)	13C4_PFOS_IIS	20.0000	1.0000	y = 0.6056 x	%RSD=7.0
13C3_HFPODA_EIS	(287.0 / 169.0)	13C2_PFHxA_IIS	8.0000	1.0000	y = 4.8947 x	%RSD=6.9

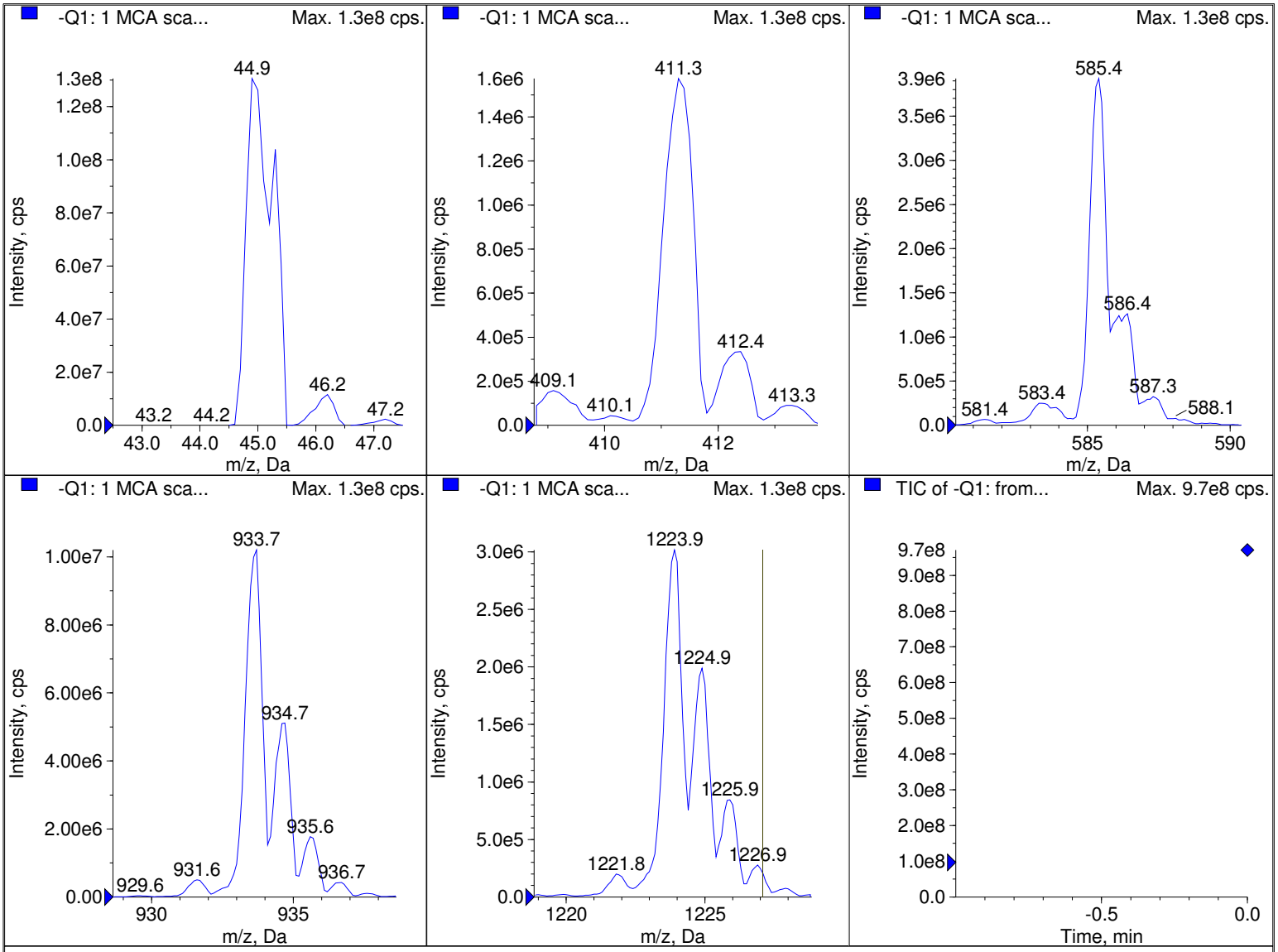
x= Concentration Analyte

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

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

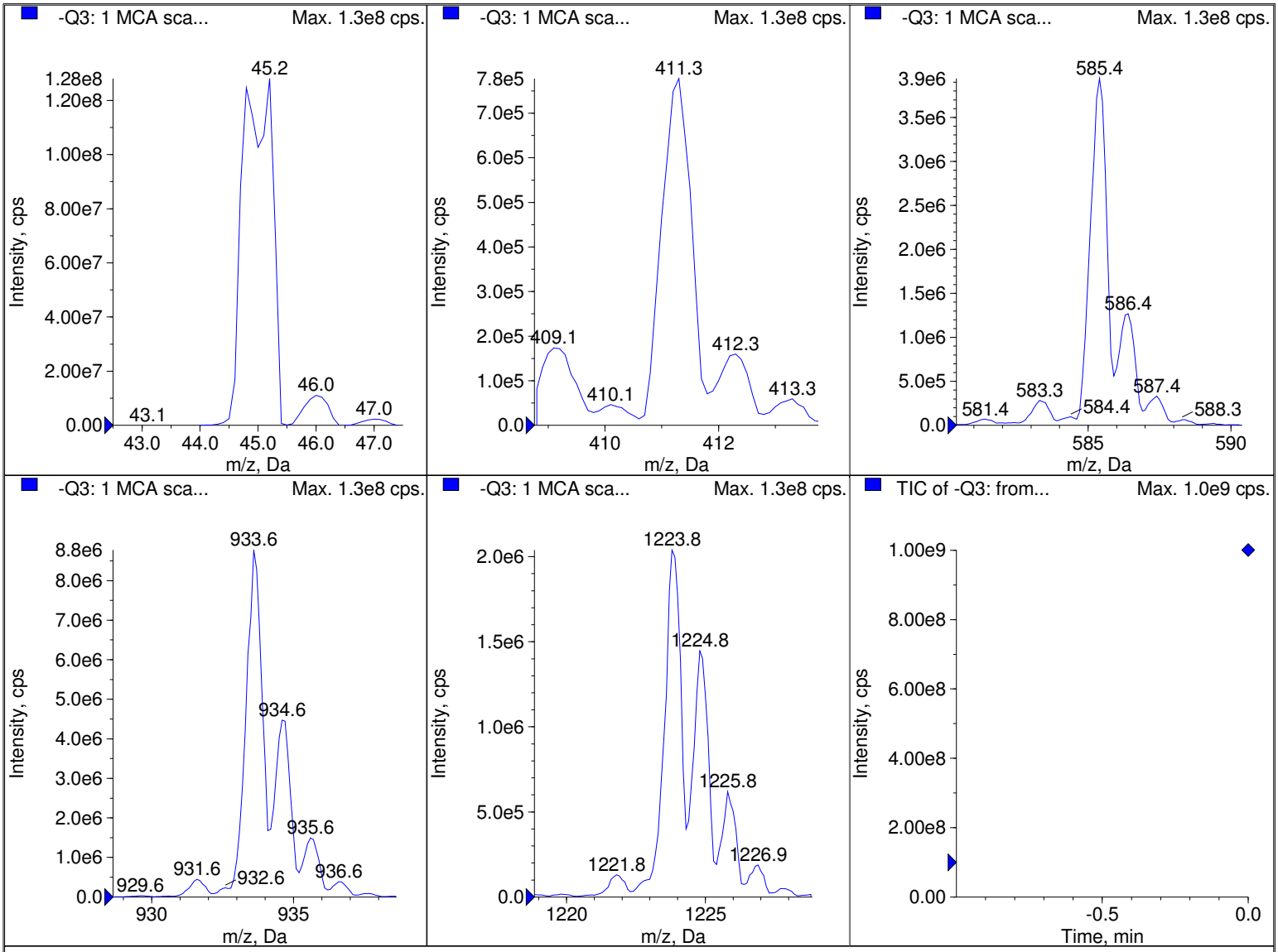
$$\text{Multiplier} = \frac{\text{Concentration of Analyte}}{\text{Concentration of PFOA}} \text{ in curve standard mix}$$

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



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

EPA 1633

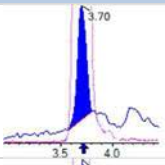
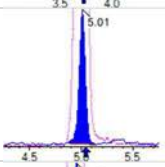
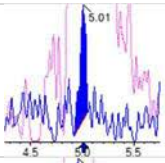
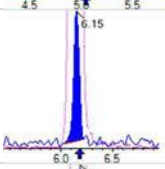
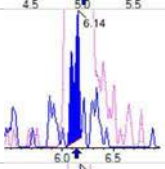
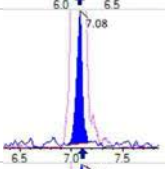
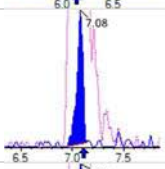
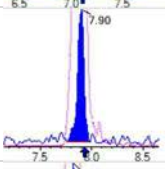
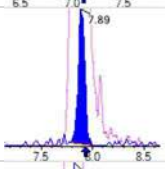
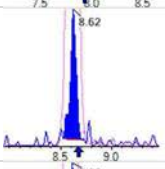
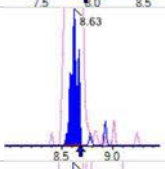
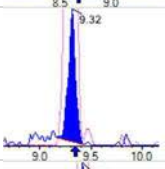
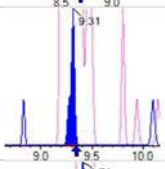
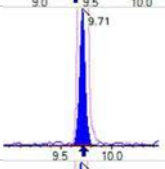
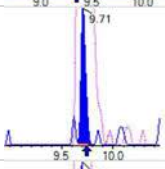
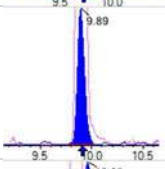
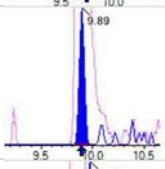
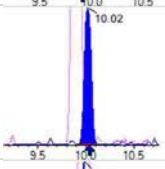
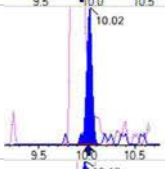
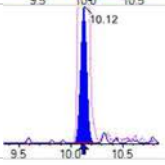
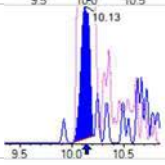
Initial Calibration: SB03941

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (1)
Acquired: 2022/12/21 - 14:26

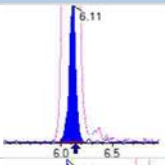
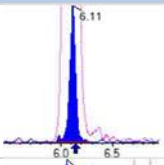
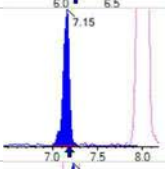
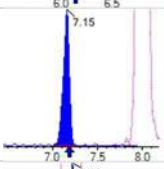
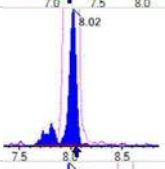
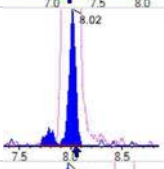
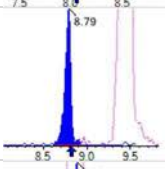
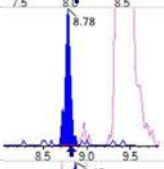
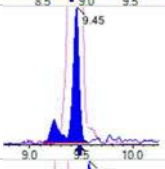
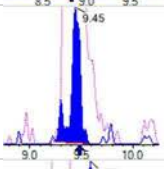
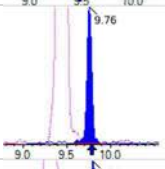
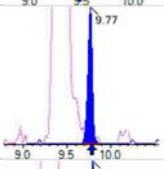
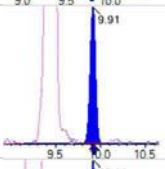
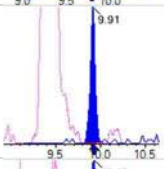
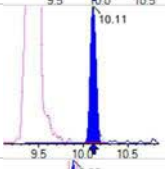
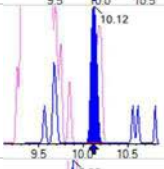
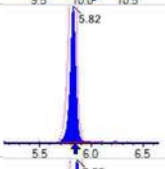
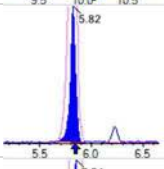
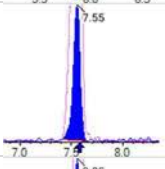
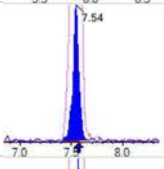
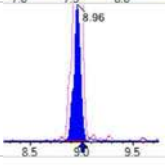
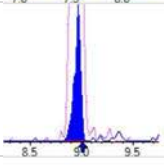
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 33232	(3.70 , 1.00) (0.00 , N/A , 0.0)	38.7	N/A 0.0 0.0	0.3669 [0.4000]	91.7%			
PFPeA	(262.9 / 219.0) 29292 (262.9 / 69.0) 400	(5.01 , 1.00) (0.00 , N/A , 0.0)	185.1 11.6	0.0136 121.9 121.9	0.2148 [0.2000]	107.4%			
PFHxA	(313.0 / 269.0) 21402 (313.0 / 119.0) 1522	(6.15 , 1.00) (0.00 , N/A , 0.9)	65.5 16.5	0.0711 72.7 72.7	0.0985 [0.1000]	98.5%			
PFHpA	(363.0 / 319.0) 20982 (363.0 / 169.0) 6156	(7.08 , 1.00) (0.00 , N/A , 0.1)	90.6 69.9	0.2934 94.2 94.2	0.1029 [0.1000]	102.9%			
PFOA	(413.0 / 369.0) 24265 (413.0 / 169.0) 8577	(7.90 , 1.00) (0.00 , N/A , 0.2)	63.6 78.4	0.3535 108.2 108.2	0.1081 [0.1000]	108.1%			
PFNA	(463.0 / 419.0) 12946 (463.0 / 169.0) 4470	(8.62 , 1.00) (-0.01 , N/A , -0.3)	48.4 29.7	0.3453 179.1 179.1	0.0879 [0.1000]	87.9%			IR2,
PFDA	(513.0 / 469.0) 23366 (513.0 / 169.0) 1070	(9.32 , 1.00) (0.00 , N/A , 0.1)	57.7 566.2	0.0458 47.9 47.9	0.1078 [0.1000]	107.8%			IR1,
PFUnA	(563.0 / 519.0) 38565 (563.0 / 169.0) 3911	(9.71 , 1.00) (0.00 , N/A , 0.1)	137.9 44.4	0.1014 116.8 116.8	0.1273 [0.1000]	127.3%			
PFDoA	(613.0 / 569.0) 35780 (613.0 / 169.0) 5060	(9.89 , 1.00) (0.00 , N/A , -0.1)	145.7 35.8	0.1414 101.6 101.6	0.1293 [0.1000]	129.3%			
PFTrDA	(663.0 / 619.0) 31090 (663.0 / 169.0) 6638	(10.02 , 1.01) (N/A , -0.01 , -0.4)	110.4 53.1	0.2135 104.3 104.3	0.1296 [0.1000]	129.6%			
PFTeDA	(713.0 / 669.0) 25589 (713.0 / 169.0) 4161	(10.12 , 1.00) (0.00 , N/A , -0.5)	94.3 12.4	0.1626 79.9 79.9	0.1029 [0.1000]	102.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (1)
Acquired: 2022/12/21 - 14:26

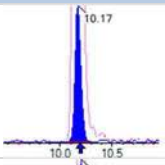
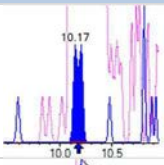
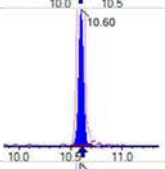
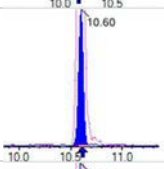
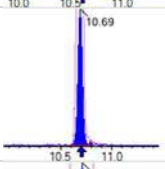
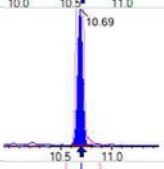
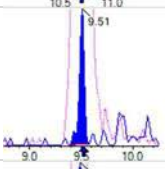
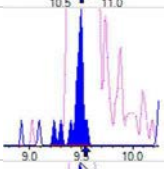
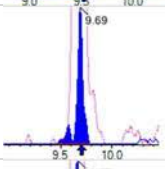
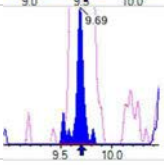
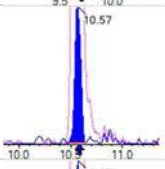
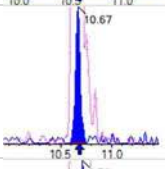
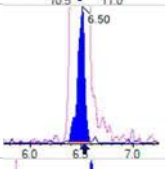
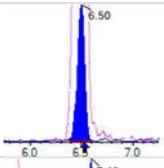
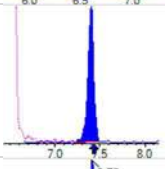
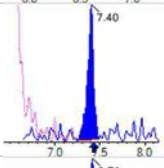
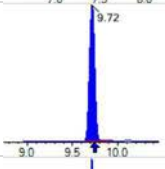
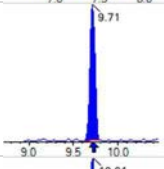
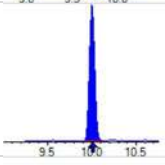
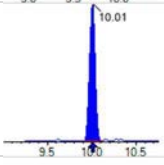
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 31824 (298.9 / 99.0) 25667	(6.11 , 1.00) (0.00 , N/A , -0.1)	228.6 158.1	0.8066 131.1 131.1	0.0899 [0.0885]	101.6%			
PFPeS	(349.0 / 80.0) 61392 (349.0 / 99.0) 26354	(7.15 , 0.89) (N/A , -0.03 , -0.1)	200.8 251.0	0.4293 120.6 120.6	0.0959 [0.0938]	102.2%			
PFHxS	(399.0 / 80.0) 54752 (399.0 / 99.0) 16706	(8.02 , 1.00) (0.00 , N/A , 0.2)	16908.1 6180.4	0.3051 90.8 90.8	0.0983 [0.0911]	107.9%			
PFHpS	(449.0 / 80.0) 40149 (449.0 / 99.0) 13981	(8.79 , 0.93) (N/A , -0.03 , 0.3)	153.7 102.5	0.3482 127.2 127.2	0.0837 [0.0951]	88.0%			
PFOS	(499.0 / 80.0) 63112 (499.0 / 99.0) 14475	(9.45 , 1.00) (0.00 , N/A , -0.1)	158.9 43.2	0.2294 94.3 94.3	0.1057 [0.0927]	114.0%			
PFNS	(549.0 / 80.0) 63295 (549.0 / 99.0) 15388	(9.76 , 1.03) (N/A , -0.02 , -0.6)	172.2 304.3	0.2431 99.6 99.6	0.0956 [0.0960]	99.6%			
PFDS	(599.0 / 80.0) 66751 (599.0 / 99.0) 15205	(9.91 , 1.05) (N/A , -0.01 , 0.0)	278.7 65.1	0.2278 101.2 101.2	0.0908 [0.0963]	94.3%			
PFDoS	(698.9 / 80.0) 32302 (698.9 / 99.0) 2212	(10.11 , 1.07) (N/A , -0.01 , -0.4)	151.2 18.9	0.0685 28.0 28.0	0.1051 [0.0970]	108.4%			IR1,
4:2FTS	(327.0 / 307.0) 73840 (327.0 / 81.0) 44310	(5.82 , 1.00) (0.00 , N/A , 0.1)	398.1 178.0	0.6001 121.5 121.5	0.3917 [0.3738]	104.8%			
6:2FTS	(427.0 / 407.0) 37991 (427.0 / 81.0) 30069	(7.55 , 1.00) (0.00 , N/A , 0.6)	171.3 166.4	0.7915 101.7 101.7	0.3927 [0.3796]	103.4%			
8:2FTS	(527.0 / 507.0) 54208 (527.0 / 81.0) 22387	(8.96 , 1.00) (0.00 , N/A , -0.5)	239.2 132.1	0.4130 73.0 73.0	0.5390 [0.3833]	140.6%			QC,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (1)
Acquired: 2022/12/21 - 14:26

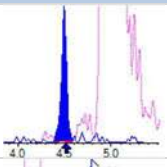
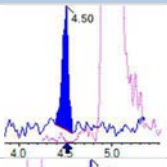
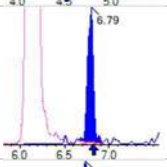
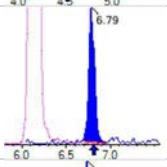
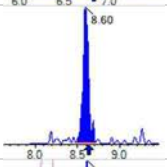
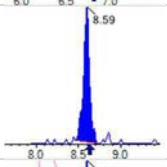
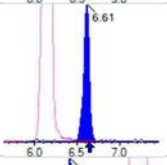
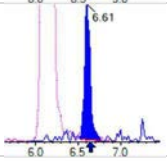
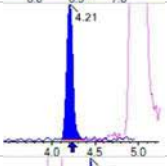
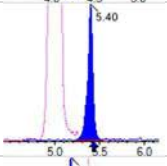
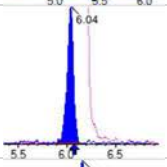
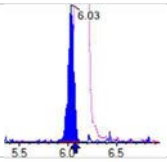
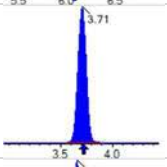
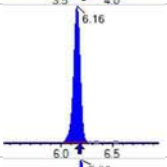
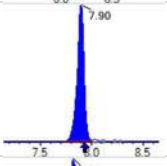
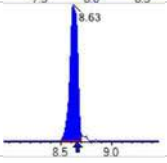
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 58943 (498.0 / 478.0) 1534	(10.17 , 1.00) (0.00 , N/A , -0.2)	160.7 16.7	0.0260 124.9 124.9	0.1005 [0.1000]	100.5%			
NMeFOSA	(511.9 / 219.0) 43872 (511.9 / 169.0) 26519	(10.60 , 1.00) (0.00 , N/A , 0.1)	298.9 244.3	0.6045 83.9 83.9	0.4219 [0.4000]	105.5%			
NEtFOSA	(526.0 / 219.0) 44346 (526.0 / 169.0) 51516	(10.69 , 1.00) (0.00 , N/A , 0.0)	466.2 369.0	1.1617 109.8 109.8	0.3771 [0.4000]	94.3%			
NMeFOSAA	(570.0 / 419.0) 8400 (570.0 / 483.0) 3567	(9.51 , 1.00) (0.01 , N/A , 0.9)	51.6 212.6	0.4247 69.1 69.1	0.0791 [0.1000]	79.1%			
NEtFOSAA	(584.0 / 419.0) 14604 (584.0 / 526.0) 5838	(9.69 , 1.00) (0.01 , N/A , 0.0)	4382.3 108.5	0.3998 54.5 54.5	0.1309 [0.1000]	130.9%			QC,
NMeFOSE	(616.1 / 59.0) 9057	(10.57 , 1.00) (0.00 , N/A , 0.0)	71.0	N/A 0.0 0.0	0.3368 [0.4000]	84.2%			
NEtFOSE	(630.0 / 59.0) 2592	(10.67 , 1.00) (0.01 , N/A , 0.0)	55.9	N/A 0.0 0.0	0.5290 [0.4000]	132.3%			QC,
HFPO-DA	(285.0 / 169.0) 18333 (285.0 / 185.0) 52126	(6.50 , 1.00) (0.00 , N/A , 0.2)	196.1 229.6	2.8433 103.6 103.6	0.2191 [0.2000]	109.5%			
ADONA	(377.0 / 85.0) 66900 (377.0 / 251.0) 10886	(7.40 , 1.14) (N/A , -0.03 , 0.0)	225.5 39.2	0.1627 130.7 130.7	0.1800 [0.1885]	95.5%			
9Cl-Pf3ONS	(531.0 / 351.0) 210135 (533.0 / 353.0) 57347	(9.72 , 1.49) (N/A , -0.01 , 0.2)	525.6 173.1	0.2729 92.2 92.2	0.1889 [0.1867]	101.2%			
11Cl-PF3OUDS	(631.0 / 451.0) 110528 (633.0 / 453.0) 41123	(10.00 , 1.54) (N/A , -0.01 , -0.3)	422.1 246.1	0.3721 112.5 112.5	0.2127 [0.1886]	112.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (1)
Acquired: 2022/12/21 - 14:26

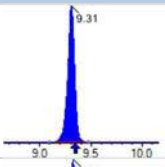
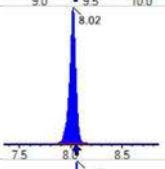
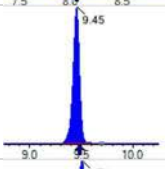
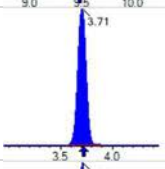
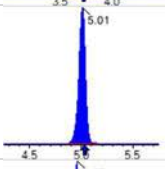
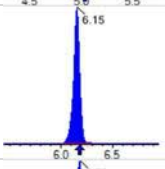
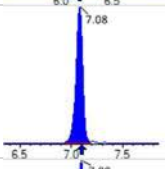
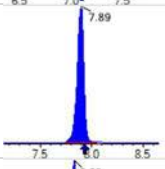
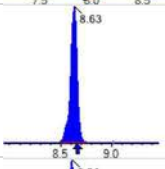
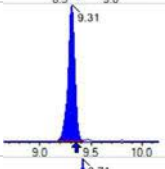
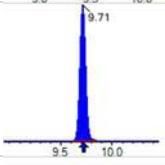
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 1752 (241.0 / 117.0) 3522	(4.50 , 0.90) (N/A , -0.02 , -0.1)	83.0 47.1	2.0106 120.1 120.1	0.3722 [0.4000]	93.0%			
5:3FTCA	(341.0 / 236.7) 13037 (341.0 / 217.0) 28648	(6.79 , 1.10) (N/A , -0.03 , 0.1)	86.9 98.3	2.1975 150.1 150.1	0.3394 [0.4000]	84.9%			IR2,
7:3FTCA	(441.0 / 317.0) 16935 (441.0 / 337.0) 16853	(8.60 , 1.40) (N/A , -0.03 , 0.2)	63.0 96.2	0.9952 118.8 118.8	0.3832 [0.4000]	95.8%			
PFEESA	(315.0 / 135.0) 48752 (315.0 / 83.0) 14590	(6.61 , 1.07) (N/A , -0.03 , 0.3)	297.4 57.3	0.2993 97.5 97.5	0.2049 [0.1785]	114.8%			
PFMPA	(229.0 / 85.0) 8084	(4.21 , 0.84) (N/A , -0.02 , 0.0)	159.7	N/A 0.0 0.0	0.2160 [0.2000]	108.0%			
PFMBA	(279.0 / 85.0) 26278	(5.40 , 1.08) (N/A , -0.03 , 0.0)	279.2	N/A 0.0 0.0	0.2031 [0.2000]	101.6%			
NFDHA	(295.0 / 201.0) 22691 (295.0 / 85.0) 23611	(6.04 , 0.98) (N/A , -0.03 , 0.3)	161.6 125.5	1.0405 117.9 117.9	0.2070 [0.2000]	103.5%			
13C3_PFBA_IIS	(216.0 / 172.0) 129665	(3.71 , N/A) (N/A , -0.01 , N/A)	734.9	N/A	0.9315 [1.0000]	93.2% { 85.4% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 201573	(6.16 , N/A) (N/A , -0.03 , N/A)	556.3	N/A	0.8729 [1.0000]	87.3% { 86.2% }			
13C4_PFOA_IIS	(417.0 / 372.0) 188558	(7.90 , N/A) (N/A , -0.03 , N/A)	449.6	N/A	0.8577 [1.0000]	85.8% { 79.2% }			
13C5_PFNA_IIS	(468.0 / 423.0) 150014	(8.63 , N/A) (N/A , -0.04 , N/A)	351.9	N/A	0.8101 [1.0000]	81.0% { 74.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

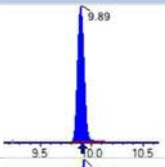
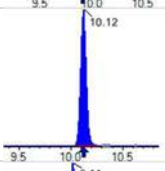
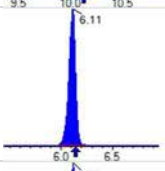
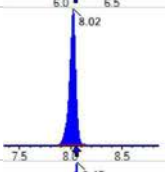
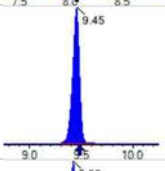
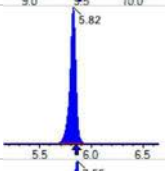
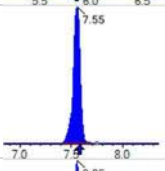
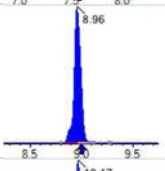
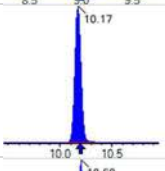
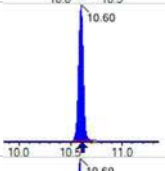
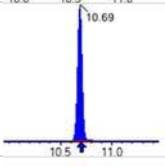
Sample I.D.: SB03941-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (1)
Acquired: 2022/12/21 - 14:26

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	(515.1 / 470.1) 182339	(9.31 , N/A) (N/A , -0.03 , N/A)	393.6	N/A	0.9866 [1.0000]	98.7% { 104.9% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 376592	(8.02 , N/A) (N/A , -0.03 , N/A)	863.0	N/A	0.9328 [1.0000]	93.3% { 89.1% }			
13C4_PFOS_IIS	(502.8 / 79.9) 319349	(9.45 , N/A) (N/A , -0.03 , N/A)	441.2	N/A	1.0005 [1.0000]	100.1% { 97.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1110686	(3.71 , N/A) (N/A , -0.01 , N/A)	922.4	N/A	8.3227 [8.0000]	104.0% { 93.3% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 621129	(5.01 , N/A) (N/A , -0.03 , N/A)	742.0	N/A	4.4287 [4.0000]	110.7% { 89.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 506172	(6.15 , N/A) (N/A , -0.03 , N/A)	648.4	N/A	2.1821 [2.0000]	109.1% { 93.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 447320	(7.08 , N/A) (N/A , -0.03 , N/A)	438.8	N/A	2.2105 [2.0000]	110.5% { 91.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 456439	(7.89 , N/A) (N/A , -0.03 , N/A)	477.0	N/A	2.2073 [2.0000]	110.4% { 91.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 171585	(8.63 , N/A) (N/A , -0.04 , N/A)	503.1	N/A	1.0402 [1.0000]	104.0% { 78.4% }			
13C6_PFDA_EIS	(519.0 / 474.0) 227812	(9.31 , N/A) (N/A , -0.03 , N/A)	316.3	N/A	0.8785 [1.0000]	87.8% { 81.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 383307	(9.71 , N/A) (N/A , -0.01 , N/A)	510.8	N/A	1.0391 [1.0000]	103.9% { 96.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: SB03941-CAL1 | Quant Method: 1633 - S2022-12-21A
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2022-12-21A (1)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2022-12-21.dam | Acquired: 2022/12/21 - 14:26

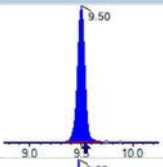
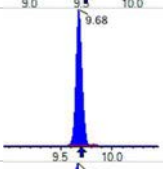
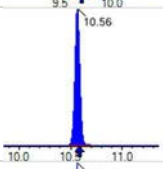
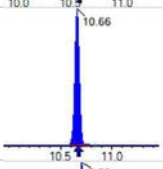
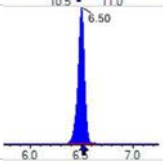
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 321089	(9.89 , N/A) (N/A , -0.01 , N/A)	437.4	N/A	0.8721 [1.0000]	87.2% { 82.8% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 280643	(10.12 , N/A) (N/A , -0.01 , N/A)	381.3	N/A	1.1478 [1.0000]	114.8% { 116.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1291973	(6.11 , N/A) (N/A , -0.03 , N/A)	870.8	N/A	2.0291 [2.0000]	101.5% { 94.1% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 716988	(8.02 , N/A) (N/A , -0.03 , N/A)	976.1	N/A	2.1164 [2.0000]	105.8% { 95.1% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1099756	(9.45 , N/A) (N/A , -0.03 , N/A)	492.9	N/A	2.0065 [2.0000]	100.3% { 92.4% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 228032	(5.82 , N/A) (N/A , -0.03 , N/A)	818.1	N/A	4.2284 [4.0000]	105.7% { 101.7% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 251709	(7.55 , N/A) (N/A , -0.03 , N/A)	625.3	N/A	3.8767 [4.0000]	96.9% { 91.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 253898	(8.96 , N/A) (N/A , -0.04 , N/A)	403.4	N/A	3.9063 [4.0000]	97.7% { 85.8% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1240858	(10.17 , N/A) (N/A , -0.01 , N/A)	815.5	N/A	1.7911 [2.0000]	89.6% { 84.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 255122	(10.60 , N/A) (N/A , -0.01 , N/A)	937.9	N/A	1.6866 [2.0000]	84.3% { 77.3% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 260767	(10.69 , N/A) (N/A , -0.01 , N/A)	1231.1	N/A	1.8675 [2.0000]	93.4% { 91.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (1)
Acquired: 2022/12/21 - 14:26

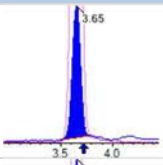
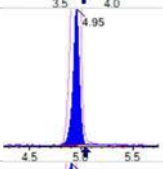
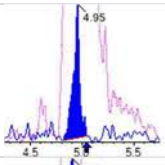
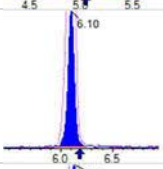
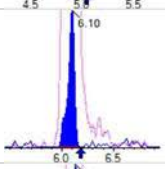
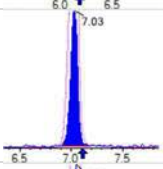
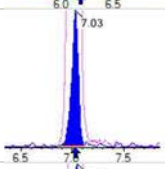
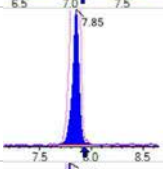
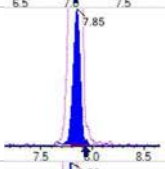
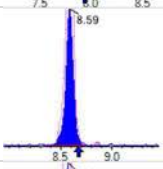
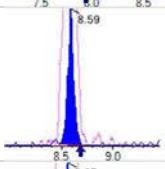
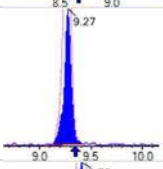
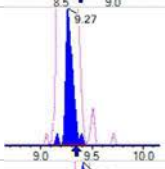
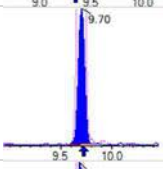
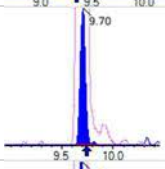
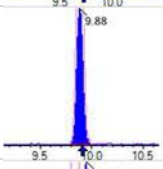
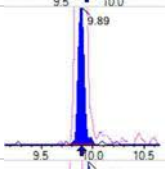
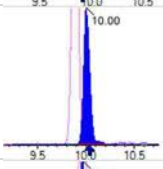
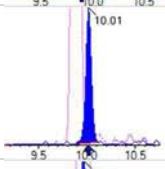
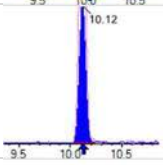
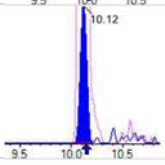
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 544985	(9.50 , N/A) (N/A , -0.03 , N/A)	407.2	N/A	4.1816 [4.0000]	104.5% { 106.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 497176	(9.68 , N/A) (N/A , -0.02 , N/A)	540.1	N/A	4.3280 [4.0000]	108.2% { 105.5% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 426059	(10.56 , N/A) (N/A , -0.01 , N/A)	1224.8	N/A	20.0598 [20.0000]	100.3% { 98.7% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 191338	(10.66 , N/A) (N/A , -0.01 , N/A)	1253.8	N/A	19.7881 [20.0000]	98.9% { 104.9% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1101544	(6.50 , N/A) (N/A , -0.03 , N/A)	840.6	N/A	8.9317 [8.0000]	111.6% { 93.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (2)
Acquired: 2022/12/21 - 14:39

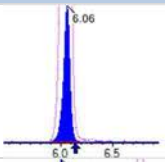
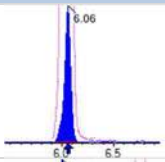
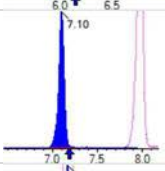
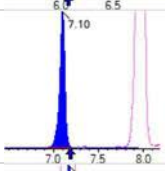
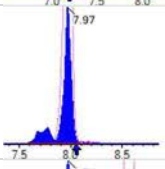
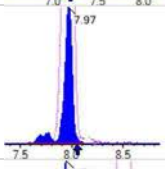
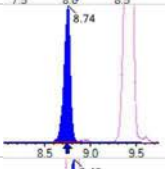
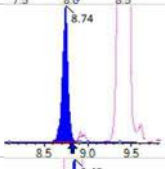
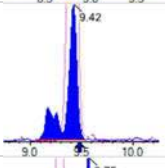
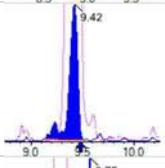
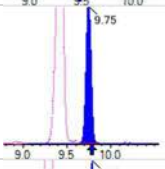
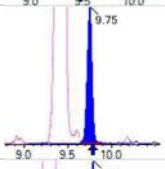
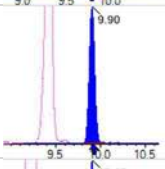
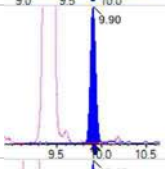
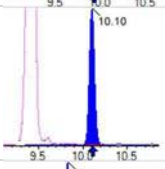
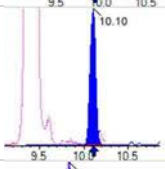
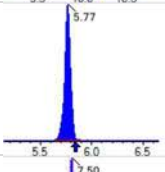
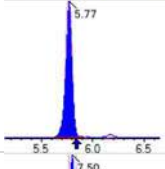
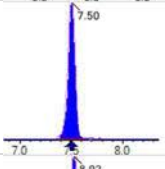
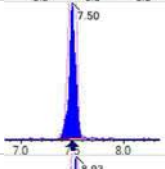
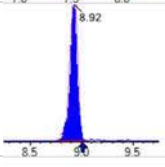
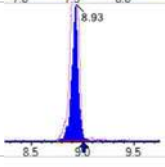
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 188421	(3.65 , 1.00) (0.00 , N/A , 0.0)	60.5	N/A 0.0 0.0	1.9028 [2.0000]	95.1%			
PFPeA	(262.9 / 219.0) 139219 (262.9 / 69.0) 1694	(4.95 , 1.00) (0.00 , N/A , 0.1)	388.4 40.0	0.0122 108.7 108.7	0.9614 [1.0000]	96.1%			
PFHxA	(313.0 / 269.0) 115909 (313.0 / 119.0) 10897	(6.10 , 1.00) (0.00 , N/A , 0.2)	310.0 98.6	0.0940 96.2 96.2	0.4941 [0.5000]	98.8%			
PFHpA	(363.0 / 319.0) 110782 (363.0 / 169.0) 29592	(7.03 , 1.00) (0.00 , N/A , 0.0)	210.6 163.1	0.2671 85.8 85.8	0.5195 [0.5000]	103.9%			
PFOA	(413.0 / 369.0) 131268 (413.0 / 169.0) 45112	(7.85 , 1.00) (0.00 , N/A , 0.2)	272.1 247.3	0.3437 105.2 105.2	0.5483 [0.5000]	109.7%			
PFNA	(463.0 / 419.0) 93190 (463.0 / 169.0) 19066	(8.59 , 1.00) (0.00 , N/A , -0.1)	270.2 71.5	0.2046 106.2 106.2	0.4982 [0.5000]	99.6%			
PFDA	(513.0 / 469.0) 116985 (513.0 / 169.0) 7443	(9.27 , 1.00) (0.01 , N/A , 0.2)	179.0 455.7	0.0636 66.6 66.6	0.4923 [0.5000]	98.5%			
PFUnA	(563.0 / 519.0) 112638 (563.0 / 169.0) 16433	(9.70 , 1.00) (0.00 , N/A , -0.2)	261.9 192.3	0.1459 168.0 168.0	0.3772 [0.5000]	75.4%			IR2,
PFDoA	(613.0 / 569.0) 170817 (613.0 / 169.0) 22966	(9.88 , 1.00) (0.00 , N/A , -0.1)	386.2 148.3	0.1344 96.6 96.6	0.5314 [0.5000]	106.3%			
PFTrDA	(663.0 / 619.0) 139394 (663.0 / 169.0) 23330	(10.00 , 1.01) (N/A , -0.02 , -0.6)	293.8 128.9	0.1674 81.8 81.8	0.5005 [0.5000]	100.1%			
PFTeDA	(713.0 / 669.0) 107548 (713.0 / 169.0) 13556	(10.12 , 1.00) (0.00 , N/A , 0.0)	266.4 52.5	0.1260 62.0 62.0	0.5082 [0.5000]	101.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (2)
Acquired: 2022/12/21 - 14:39

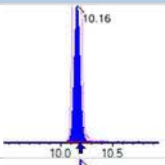
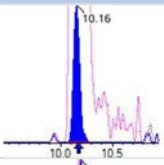
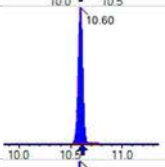
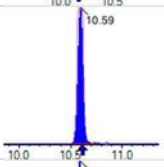
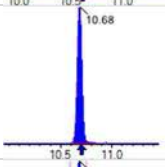
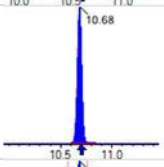
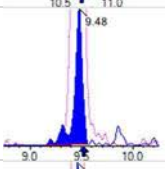
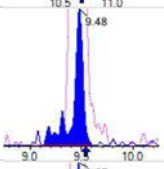
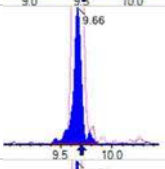
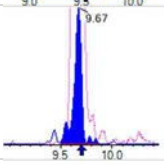
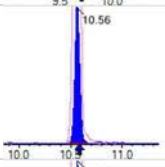
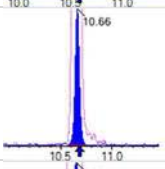
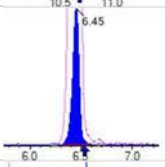
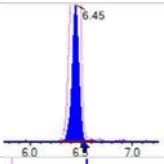
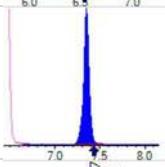
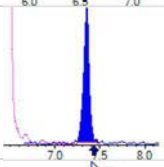
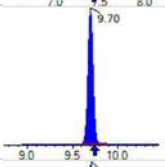
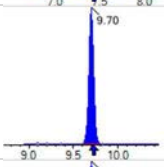
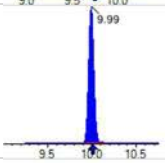
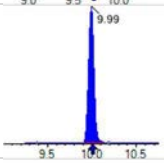
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 169308 (298.9 / 99.0) 116887	(6.06 , 1.00) (0.00 , N/A , 0.1)	532.3 438.0	0.6904 112.2 112.2	0.4218 [0.4424]	95.4%			
PFPeS	(349.0 / 80.0) 303756 (349.0 / 99.0) 113877	(7.10 , 0.89) (N/A , -0.08 , 0.0)	643.5 533.0	0.3749 105.3 105.3	0.4401 [0.4692]	93.8%			
PFHxS	(399.0 / 80.0) 254653 (399.0 / 99.0) 87687	(7.97 , 1.00) (0.00 , N/A , 0.0)	2864.9 16565.2	0.3443 102.4 102.4	0.4242 [0.4555]	93.1%			
PFHpS	(449.0 / 80.0) 232130 (449.0 / 99.0) 63281	(8.74 , 0.93) (N/A , -0.07 , 0.2)	720.8 355.5	0.2726 99.6 99.6	0.4831 [0.4757]	101.5%			
PFOS	(499.0 / 80.0) 271232 (499.0 / 99.0) 55582	(9.42 , 1.00) (0.00 , N/A , 0.2)	71.7 84.7	0.2049 84.3 84.3	0.4537 [0.4637]	97.8%			
PFNS	(549.0 / 80.0) 326430 (549.0 / 99.0) 76899	(9.75 , 1.03) (N/A , -0.03 , 0.0)	700.8 332.3	0.2356 96.5 96.5	0.4923 [0.4799]	102.6%			
PFDS	(599.0 / 80.0) 361311 (599.0 / 99.0) 88020	(9.90 , 1.05) (N/A , -0.02 , 0.0)	528.4 257.7	0.2436 108.2 108.2	0.4908 [0.4816]	101.9%			
PFDoS	(698.9 / 80.0) 143379 (698.9 / 99.0) 39342	(10.10 , 1.07) (N/A , -0.01 , 0.0)	394.0 390.0	0.2744 112.1 112.1	0.4660 [0.4848]	96.1%			
4:2FTS	(327.0 / 307.0) 369834 (327.0 / 81.0) 206873	(5.77 , 1.00) (0.00 , N/A , -0.2)	740.7 453.5	0.5594 113.2 113.2	1.8624 [1.8691]	99.6%			
6:2FTS	(427.0 / 407.0) 212400 (427.0 / 81.0) 133719	(7.50 , 1.00) (0.00 , N/A , 0.2)	557.0 426.3	0.6296 80.9 80.9	1.8471 [1.8981]	97.3%			
8:2FTS	(527.0 / 507.0) 187570 (527.0 / 81.0) 119060	(8.92 , 1.00) (0.00 , N/A , -0.3)	288.9 320.4	0.6348 112.1 112.1	1.8629 [1.9166]	97.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

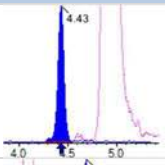
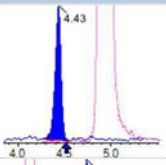
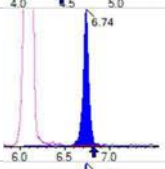
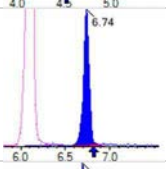
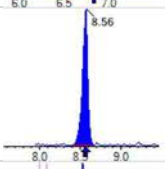
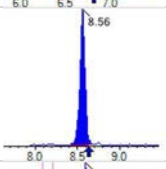
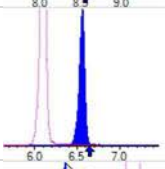
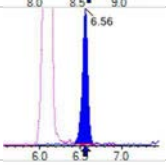
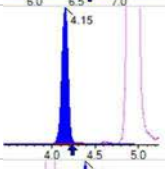
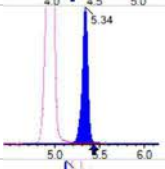
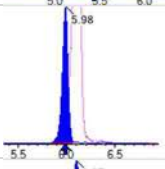
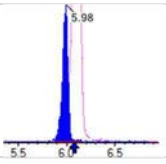
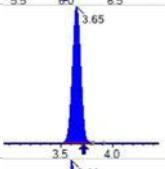
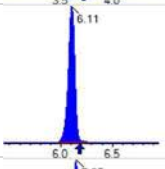
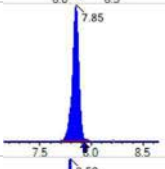
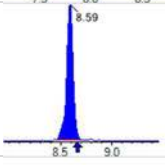
Sample I.D.: SB03941-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (2)
Acquired: 2022/12/21 - 14:39

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 352198 (498.0 / 478.0) 8651	(10.16 , 1.00) (0.00 , N/A , 0.4)	513.9 157.2	0.0246 117.8 117.8	0.4906 [0.5000]	98.1%			
NMeFOSA	(511.9 / 219.0) 263260 (511.9 / 169.0) 153613	(10.60 , 1.00) (0.00 , N/A , 0.0)	638.7 672.6	0.5835 81.0 81.0	2.2704 [2.0000]	113.5%			
NEtFOSA	(526.0 / 219.0) 251838 (526.0 / 169.0) 278757	(10.68 , 1.00) (0.00 , N/A , 0.0)	1012.6 877.2	1.1069 104.7 104.7	1.9774 [2.0000]	98.9%			
NMeFOSAA	(570.0 / 419.0) 51544 (570.0 / 483.0) 33073	(9.48 , 1.00) (0.00 , N/A , -0.3)	116.9 95.9	0.6416 104.4 104.4	0.5096 [0.5000]	101.9%			
NEtFOSAA	(584.0 / 419.0) 57365 (584.0 / 526.0) 31030	(9.66 , 1.00) (0.00 , N/A , -0.4)	562.4 124.4	0.5409 73.8 73.8	0.5544 [0.5000]	110.9%			
NMeFOSE	(616.1 / 59.0) 54315	(10.56 , 1.00) (0.00 , N/A , 0.0)	454.0	N/A 0.0 0.0	1.8098 [2.0000]	90.5%			
NEtFOSE	(630.0 / 59.0) 10545	(10.66 , 1.00) (0.01 , N/A , 0.0)	298.7	N/A 0.0 0.0	1.8678 [2.0000]	93.4%			
HFPO-DA	(285.0 / 169.0) 90628 (285.0 / 185.0) 244184	(6.45 , 1.00) (0.00 , N/A , 0.3)	355.2 511.8	2.6944 98.2 98.2	1.0286 [1.0000]	102.9%			
ADONA	(377.0 / 85.0) 360241 (377.0 / 251.0) 45845	(7.35 , 1.14) (N/A , -0.08 , 0.0)	653.3 198.6	0.1273 102.2 102.2	0.9205 [0.9427]	97.6%			
9Cl-Pf3ONS	(531.0 / 351.0) 951547 (533.0 / 353.0) 308143	(9.70 , 1.50) (N/A , -0.03 , 0.0)	461.5 485.9	0.3238 109.4 109.4	0.8553 [0.9333]	91.7%			
11Cl-PF3OUDS	(631.0 / 451.0) 560809 (633.0 / 453.0) 162858	(9.99 , 1.55) (N/A , -0.02 , 0.0)	818.9 500.2	0.2904 87.8 87.8	1.0253 [0.9432]	108.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: SB03941-CAL2 | Quant Method: 1633 - S2022-12-21A
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2022-12-21A (2)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2022-12-21.dam | Acquired: 2022/12/21 - 14:39

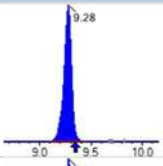
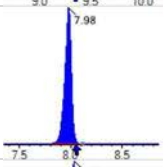
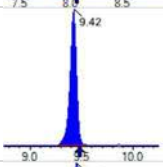
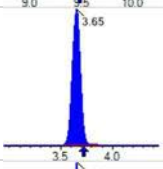
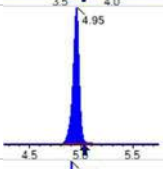
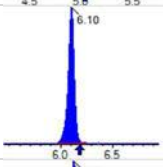
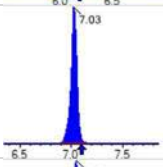
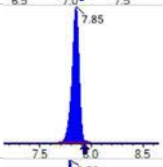
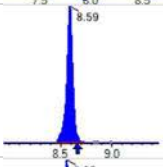
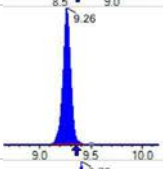
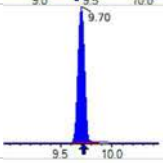
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 8941 (241.0 / 117.0) 17863	(4.43 , 0.89) (N/A , -0.08 , -0.1)	270.0 173.3	1.9979 119.4 119.4	1.7890 [2.0000]	89.5%			
5:3FTCA	(341.0 / 236.7) 83112 (341.0 / 217.0) 121575	(6.74 , 1.10) (N/A , -0.08 , 0.0)	282.1 320.5	1.4628 99.9 99.9	2.0050 [2.0000]	100.2%			
7:3FTCA	(441.0 / 317.0) 94595 (441.0 / 337.0) 73967	(8.56 , 1.40) (N/A , -0.07 , 0.0)	212.2 275.3	0.7819 93.4 93.4	1.9833 [2.0000]	99.2%			
PFEESA	(315.0 / 135.0) 227230 (315.0 / 83.0) 64514	(6.56 , 1.07) (N/A , -0.08 , 0.1)	666.6 216.3	0.2839 92.5 92.5	0.8847 [0.8925]	99.1%			
PFMPA	(229.0 / 85.0) 38716	(4.15 , 0.84) (N/A , -0.08 , 0.0)	651.7	N/A 0.0 0.0	0.9742 [1.0000]	97.4%			
PFMBA	(279.0 / 85.0) 138545	(5.34 , 1.08) (N/A , -0.09 , 0.0)	716.8	N/A 0.0 0.0	1.0085 [1.0000]	100.9%			
NFDHA	(295.0 / 201.0) 109976 (295.0 / 85.0) 101086	(5.98 , 0.98) (N/A , -0.08 , 0.0)	530.5 312.3	0.9192 104.1 104.1	0.9297 [1.0000]	93.0%			
13C3_PFBA_IIS	(216.0 / 172.0) 145032	(3.65 , N/A) (N/A , -0.07 , N/A)	748.9	N/A	1.0419 [1.0000]	104.2% { 95.6% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 249645	(6.11 , N/A) (N/A , -0.08 , N/A)	617.2	N/A	1.0811 [1.0000]	108.1% { 106.7% }			
13C4_PFOA_IIS	(417.0 / 372.0) 223206	(7.85 , N/A) (N/A , -0.08 , N/A)	653.2	N/A	1.0153 [1.0000]	101.5% { 93.8% }			
13C5_PFNA_IIS	(468.0 / 423.0) 192740	(8.59 , N/A) (N/A , -0.08 , N/A)	339.0	N/A	1.0408 [1.0000]	104.1% { 95.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

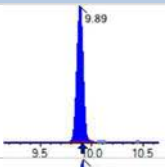
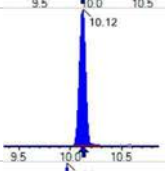
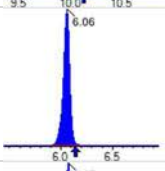
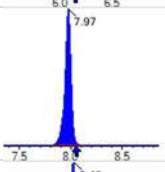
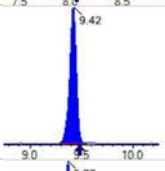
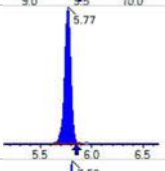
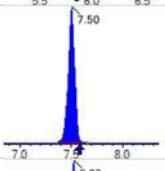
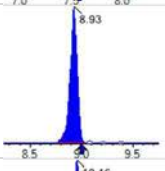
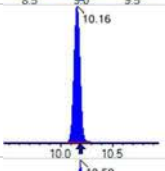
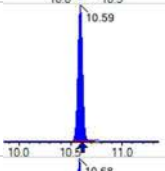
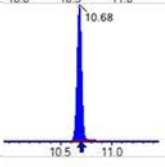
Sample I.D.: SB03941-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (2)
Acquired: 2022/12/21 - 14:39

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 201200	(9.28 , N/A) (N/A , -0.07 , N/A)	450.6	N/A	1.0887 [1.0000]	108.9% { 115.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 391808	(7.98 , N/A) (N/A , -0.07 , N/A)	810.8	N/A	0.9705 [1.0000]	97.1% { 92.7% }			
13C4_PFOS_IIS	(502.8 / 79.9) 350992	(9.42 , N/A) (N/A , -0.06 , N/A)	464.9	N/A	1.0997 [1.0000]	110.0% { 107.1% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1214259	(3.65 , N/A) (N/A , -0.07 , N/A)	905.9	N/A	8.1347 [8.0000]	101.7% { 102.0% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 659529	(4.95 , N/A) (N/A , -0.08 , N/A)	789.0	N/A	3.7969 [4.0000]	94.9% { 94.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 546323	(6.10 , N/A) (N/A , -0.08 , N/A)	742.9	N/A	1.9017 [2.0000]	95.1% { 101.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 467878	(7.03 , N/A) (N/A , -0.08 , N/A)	943.4	N/A	1.8669 [2.0000]	93.3% { 95.3% }			
13C8_PFOA_EIS	(421.0 / 376.0) 486948	(7.85 , N/A) (N/A , -0.08 , N/A)	788.4	N/A	1.9893 [2.0000]	99.5% { 97.9% }			
13C9_PFNA_EIS	(472.0 / 427.0) 217999	(8.59 , N/A) (N/A , -0.08 , N/A)	418.4	N/A	1.0286 [1.0000]	102.9% { 99.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 249666	(9.26 , N/A) (N/A , -0.08 , N/A)	346.2	N/A	0.8725 [1.0000]	87.2% { 88.8% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 377869	(9.70 , N/A) (N/A , -0.03 , N/A)	445.6	N/A	0.9284 [1.0000]	92.8% { 94.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: SB03941-CAL2 | Quant Method: 1633 - S2022-12-21A
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2022-12-21A (2)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2022-12-21.dam | Acquired: 2022/12/21 - 14:39

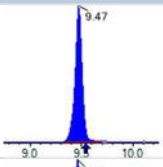
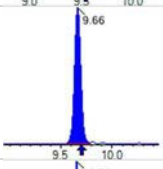
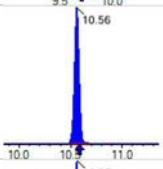
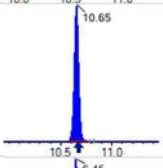
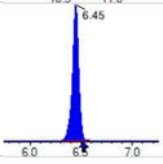
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 372869	(9.89 , N/A) (N/A , -0.02 , N/A)	424.9	N/A	0.9178 [1.0000]	91.8% { 96.2% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 238784	(10.12 , N/A) (N/A , -0.01 , N/A)	386.9	N/A	0.8850 [1.0000]	88.5% { 98.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1464188	(6.06 , N/A) (N/A , -0.08 , N/A)	862.0	N/A	2.2103 [2.0000]	110.5% { 106.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 772747	(7.97 , N/A) (N/A , -0.08 , N/A)	946.5	N/A	2.1924 [2.0000]	109.6% { 102.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1101471	(9.42 , N/A) (N/A , -0.06 , N/A)	400.8	N/A	1.8285 [2.0000]	91.4% { 92.5% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 240226	(5.77 , N/A) (N/A , -0.08 , N/A)	728.1	N/A	4.2815 [4.0000]	107.0% { 107.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 299151	(7.50 , N/A) (N/A , -0.08 , N/A)	829.8	N/A	4.4285 [4.0000]	110.7% { 109.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 254209	(8.93 , N/A) (N/A , -0.07 , N/A)	387.1	N/A	3.7592 [4.0000]	94.0% { 85.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1519271	(10.16 , N/A) (N/A , -0.02 , N/A)	650.9	N/A	1.9952 [2.0000]	99.8% { 103.7% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 284500	(10.59 , N/A) (N/A , -0.02 , N/A)	1128.4	N/A	1.7113 [2.0000]	85.6% { 86.2% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 282389	(10.68 , N/A) (N/A , -0.01 , N/A)	1021.0	N/A	1.8400 [2.0000]	92.0% { 99.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (2)
Acquired: 2022/12/21 - 14:39

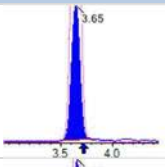
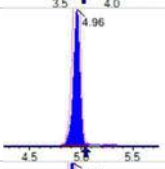
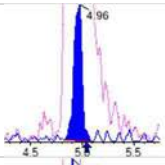
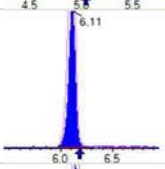
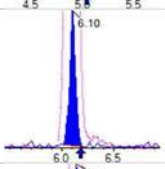
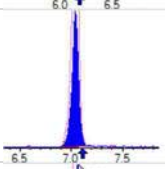
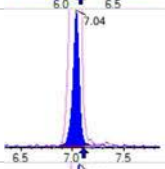
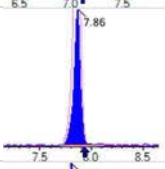
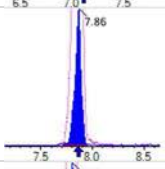
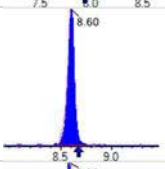
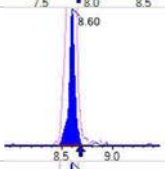
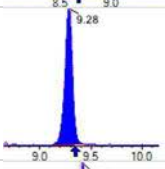
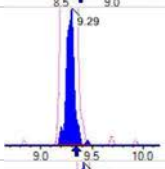
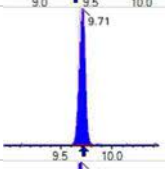
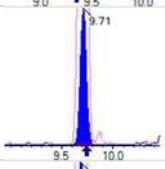
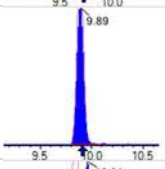
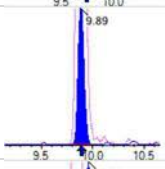
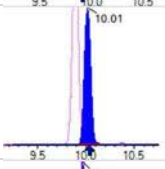
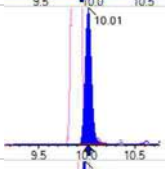
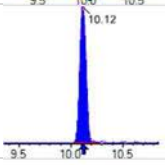
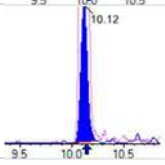
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 519161	(9.47 , N/A) (N/A , -0.06 , N/A)	335.3	N/A	3.6243 [4.0000]	90.6% { 101.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 461032	(9.66 , N/A) (N/A , -0.03 , N/A)	492.8	N/A	3.6515 [4.0000]	91.3% { 97.8% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 475546	(10.56 , N/A) (N/A , -0.02 , N/A)	945.0	N/A	20.3712 [20.0000]	101.9% { 110.2% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 220531	(10.65 , N/A) (N/A , -0.02 , N/A)	1126.5	N/A	20.7511 [20.0000]	103.8% { 120.9% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1159691	(6.45 , N/A) (N/A , -0.08 , N/A)	900.5	N/A	7.5925 [8.0000]	94.9% { 98.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (3)
Acquired: 2022/12/21 - 14:51

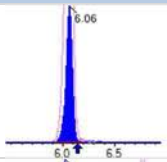
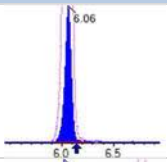
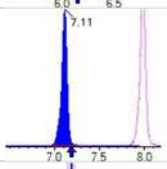
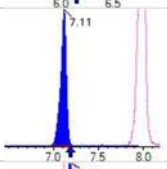
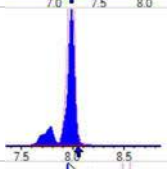
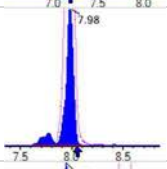
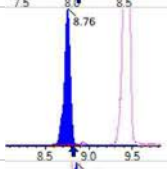
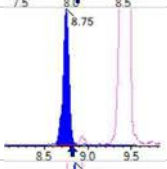
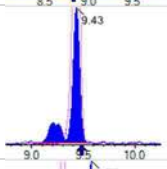
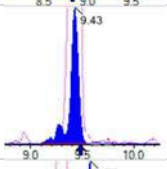
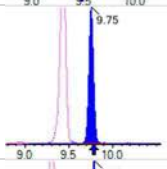
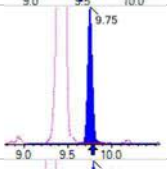
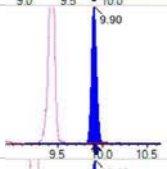
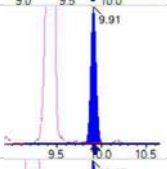
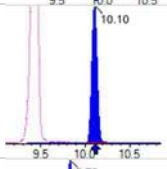
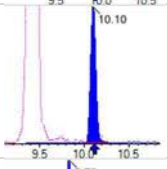
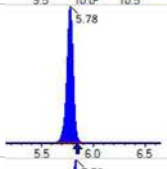
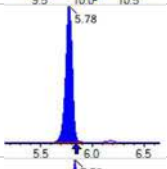
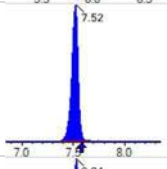
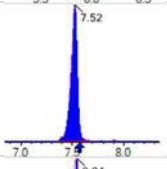
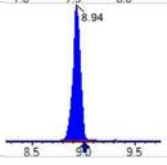
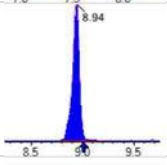
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 364131	(3.65 , 1.00) (0.00 , N/A , 0.0)	70.2	N/A 0.0 0.0	3.8803 [4.0000]	97.0%			
PFPeA	(262.9 / 219.0) 278554 (262.9 / 69.0) 3213	(4.96 , 1.00) (0.00 , N/A , -0.1)	617.6 57.0	0.0115 103.0 103.0	1.9980 [2.0000]	99.9%			
PFHxA	(313.0 / 269.0) 230736 (313.0 / 119.0) 17813	(6.11 , 1.00) (0.00 , N/A , 0.3)	411.0 127.8	0.0772 79.0 79.0	1.0595 [1.0000]	106.0%			
PFHpA	(363.0 / 319.0) 200810 (363.0 / 169.0) 53734	(7.04 , 1.00) (0.00 , N/A , 0.1)	368.9 203.8	0.2676 85.9 85.9	0.9983 [1.0000]	99.8%			
PFOA	(413.0 / 369.0) 205143 (413.0 / 169.0) 72948	(7.86 , 1.00) (0.00 , N/A , 0.0)	303.6 404.0	0.3556 108.8 108.8	0.9507 [1.0000]	95.1%			
PFNA	(463.0 / 419.0) 167406 (463.0 / 169.0) 35020	(8.60 , 1.00) (0.00 , N/A , 0.2)	279.7 86.6	0.2092 108.5 108.5	1.0679 [1.0000]	106.8%			
PFDA	(513.0 / 469.0) 260310 (513.0 / 169.0) 19191	(9.28 , 1.00) (0.00 , N/A , -0.3)	246.9 388.3	0.0737 77.1 77.1	0.9614 [1.0000]	96.1%			
PFUnA	(563.0 / 519.0) 242766 (563.0 / 169.0) 29112	(9.71 , 1.00) (0.00 , N/A , 0.0)	470.3 179.8	0.1199 138.1 138.1	0.8605 [1.0000]	86.1%			
PFDoA	(613.0 / 569.0) 276870 (613.0 / 169.0) 37204	(9.89 , 1.00) (0.00 , N/A , 0.1)	510.1 202.8	0.1344 96.5 96.5	0.8423 [1.0000]	84.2%			
PFTrDA	(663.0 / 619.0) 272310 (663.0 / 169.0) 51052	(10.01 , 1.01) (N/A , -0.01 , 0.2)	518.4 210.4	0.1875 91.6 91.6	0.9561 [1.0000]	95.6%			
PFTeDA	(713.0 / 669.0) 202539 (713.0 / 169.0) 35837	(10.12 , 1.00) (0.00 , N/A , -0.1)	464.6 111.3	0.1769 87.0 87.0	0.9914 [1.0000]	99.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (3)
Acquired: 2022/12/21 - 14:51

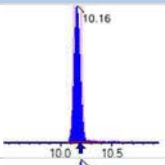
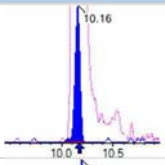
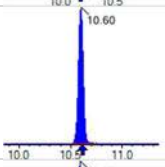
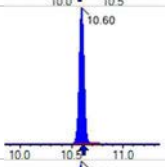
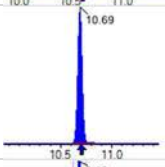
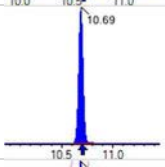
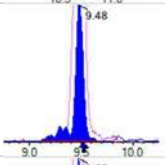
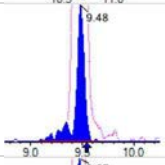
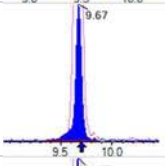
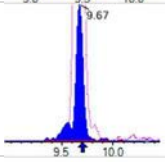
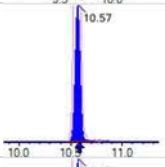
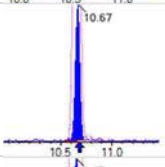
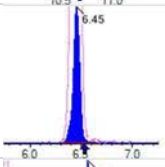
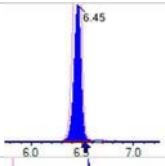
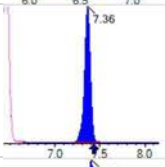
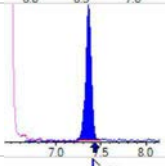
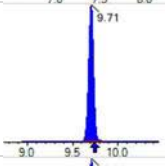
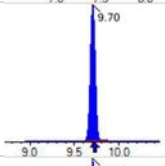
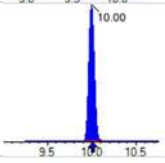
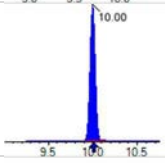
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 319512 (298.9 / 99.0) 214428	(6.06 , 1.00) (0.00 , N/A , 0.1)	552.7 573.6	0.6711 109.0 109.0	0.8374 [0.8847]	94.7%			
PFPeS	(349.0 / 80.0) 558156 (349.0 / 99.0) 204172	(7.11 , 0.89) (N/A , -0.07 , -0.2)	726.6 707.2	0.3658 102.8 102.8	0.9319 [0.9384]	99.3%			
PFHxS	(399.0 / 80.0) 460645 (399.0 / 99.0) 168480	(7.99 , 1.00) (0.00 , N/A , 0.2)	4071.9 6022.7	0.3657 108.8 108.8	0.8844 [0.9110]	97.1%			
PFHpS	(449.0 / 80.0) 399999 (449.0 / 99.0) 119983	(8.76 , 0.93) (N/A , -0.06 , 0.2)	473.2 390.9	0.3000 109.6 109.6	0.8477 [0.9514]	89.1%			
PFOS	(499.0 / 80.0) 510216 (499.0 / 99.0) 119134	(9.43 , 1.00) (0.00 , N/A , 0.3)	371.9 120.6	0.2335 96.0 96.0	0.8692 [0.9275]	93.7%			
PFNS	(549.0 / 80.0) 600745 (549.0 / 99.0) 129442	(9.75 , 1.03) (N/A , -0.02 , 0.2)	640.1 539.0	0.2155 88.3 88.3	0.9226 [0.9599]	96.1%			
PFDS	(599.0 / 80.0) 650063 (599.0 / 99.0) 165992	(9.90 , 1.05) (N/A , -0.02 , -0.4)	597.2 555.1	0.2553 113.4 113.4	0.8993 [0.9631]	93.4%			
PFDoS	(698.9 / 80.0) 310556 (698.9 / 99.0) 62440	(10.10 , 1.07) (N/A , -0.01 , 0.2)	612.5 270.2	0.2011 82.2 82.2	1.0279 [0.9696]	106.0%			
4:2FTS	(327.0 / 307.0) 734838 (327.0 / 81.0) 391330	(5.78 , 1.00) (0.00 , N/A , 0.0)	955.1 537.9	0.5325 107.8 107.8	3.8805 [3.7381]	103.8%			
6:2FTS	(427.0 / 407.0) 417365 (427.0 / 81.0) 267446	(7.52 , 1.00) (0.00 , N/A , -0.3)	653.9 548.6	0.6408 82.3 82.3	3.6814 [3.7962]	97.0%			
8:2FTS	(527.0 / 507.0) 398366 (527.0 / 81.0) 261360	(8.94 , 1.00) (0.00 , N/A , -0.3)	438.4 397.1	0.6561 115.9 115.9	3.3122 [3.8332]	86.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (3)
Acquired: 2022/12/21 - 14:51

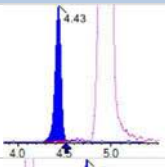
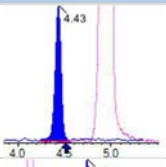
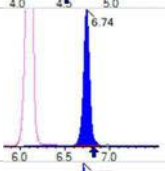
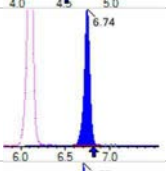
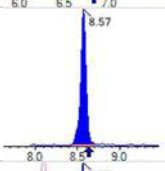
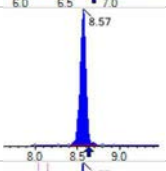
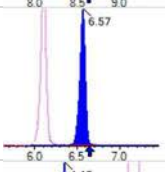
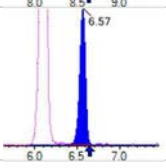
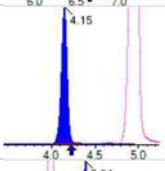
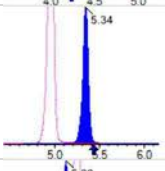
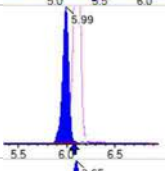
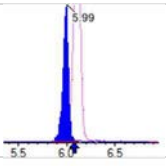
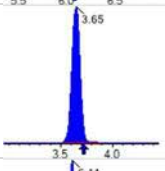
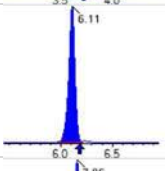
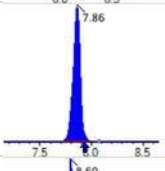
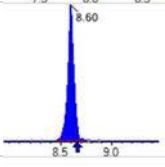
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 634394 (498.0 / 478.0) 14236	(10.16 , 1.00) (0.00 , N/A , 0.3)	672.1 142.6	0.0224 107.7 107.7	1.0186 [1.0000]	101.9%			
NMeFOSA	(511.9 / 219.0) 481844 (511.9 / 169.0) 311400	(10.60 , 1.00) (0.00 , N/A , 0.1)	1243.8 1242.2	0.6463 89.7 89.7	3.9784 [4.0000]	99.5%			
NEtFOSA	(526.0 / 219.0) 509457 (526.0 / 169.0) 556544	(10.69 , 1.00) (0.00 , N/A , 0.0)	1029.5 1040.4	1.0924 103.3 103.3	3.8752 [4.0000]	96.9%			
NMeFOSAA	(570.0 / 419.0) 98460 (570.0 / 483.0) 45291	(9.48 , 1.00) (0.00 , N/A , -0.2)	201.1 368.1	0.4600 74.8 74.8	0.9589 [1.0000]	95.9%			
NEtFOSAA	(584.0 / 419.0) 100078 (584.0 / 526.0) 64349	(9.67 , 1.00) (0.00 , N/A , 0.1)	308.0 11085.9	0.6430 87.7 87.7	0.9729 [1.0000]	97.3%			
NMeFOSE	(616.1 / 59.0) 109477	(10.57 , 1.00) (0.00 , N/A , 0.0)	635.3	N/A 0.0 0.0	4.0466 [4.0000]	101.2%			
NEtFOSE	(630.0 / 59.0) 18470	(10.67 , 1.00) (0.01 , N/A , 0.0)	332.3	N/A 0.0 0.0	3.6420 [4.0000]	91.1%			
HFPO-DA	(285.0 / 169.0) 157217 (285.0 / 185.0) 447290	(6.45 , 1.00) (0.00 , N/A , 0.0)	473.3 607.4	2.8450 103.7 103.7	1.8500 [2.0000]	92.5%			
ADONA	(377.0 / 85.0) 712997 (377.0 / 251.0) 91158	(7.36 , 1.14) (N/A , -0.07 , 0.0)	873.4 270.7	0.1279 102.7 102.7	1.8890 [1.8854]	100.2%			
9Cl-Pf3ONS	(531.0 / 351.0) 2025171 (533.0 / 353.0) 608975	(9.71 , 1.50) (N/A , -0.03 , 0.1)	727.3 554.2	0.3007 101.6 101.6	1.9101 [1.8665]	102.3%			
11Cl-PF3OUDS	(631.0 / 451.0) 945192 (633.0 / 453.0) 304735	(10.00 , 1.55) (N/A , -0.01 , -0.1)	1065.3 837.5	0.3224 97.5 97.5	1.7916 [1.8864]	95.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (3)
Acquired: 2022/12/21 - 14:51

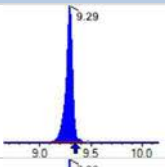
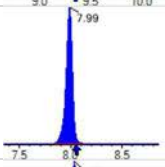
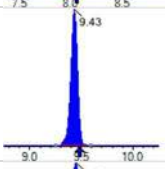
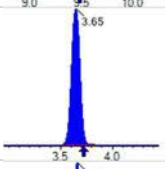
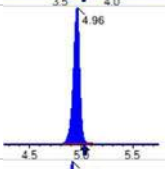
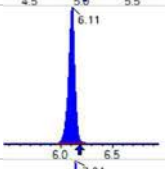
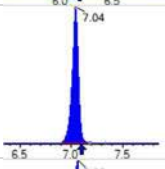
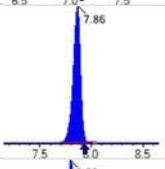
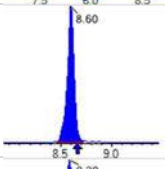
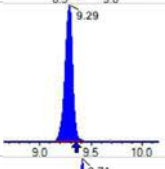
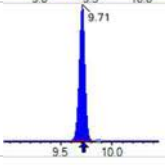
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 19424 (241.0 / 117.0) 28656	(4.43 , 0.89) (N/A , -0.08 , 0.0)	383.0 238.7	1.4753 88.2 88.2	4.0370 [4.0000]	100.9%			
5:3FTCA	(341.0 / 236.7) 163618 (341.0 / 217.0) 258573	(6.74 , 1.10) (N/A , -0.08 , -0.1)	567.6 530.2	1.5803 108.0 108.0	4.2520 [4.0000]	106.3%			
7:3FTCA	(441.0 / 317.0) 173439 (441.0 / 337.0) 148204	(8.57 , 1.40) (N/A , -0.06 , 0.2)	277.8 265.5	0.8545 102.0 102.0	3.9172 [4.0000]	97.9%			
PFEESA	(315.0 / 135.0) 425676 (315.0 / 83.0) 120482	(6.57 , 1.08) (N/A , -0.07 , 0.1)	558.7 464.3	0.2830 92.2 92.2	1.7854 [1.7849]	100.0%			
PFMPA	(229.0 / 85.0) 73196	(4.15 , 0.84) (N/A , -0.08 , 0.0)	797.4	N/A 0.0 0.0	1.9130 [2.0000]	95.6%			
PFMBA	(279.0 / 85.0) 259517	(5.34 , 1.08) (N/A , -0.08 , 0.0)	721.2	N/A 0.0 0.0	1.9622 [2.0000]	98.1%			
NFDHA	(295.0 / 201.0) 219791 (295.0 / 85.0) 199407	(5.99 , 0.98) (N/A , -0.08 , -0.1)	614.7 459.5	0.9073 102.8 102.8	2.0016 [2.0000]	100.1%			
13C3_PFBA_IIS	(216.0 / 172.0) 133715	(3.65 , N/A) (N/A , -0.07 , N/A)	699.9	N/A	0.9606 [1.0000]	96.1% { 88.1% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 210807	(6.11 , N/A) (N/A , -0.08 , N/A)	520.8	N/A	0.9129 [1.0000]	91.3% { 90.1% }			
13C4_PFOA_IIS	(417.0 / 372.0) 203834	(7.86 , N/A) (N/A , -0.07 , N/A)	799.6	N/A	0.9272 [1.0000]	92.7% { 85.6% }			
13C5_PFNA_IIS	(468.0 / 423.0) 176714	(8.60 , N/A) (N/A , -0.07 , N/A)	380.6	N/A	0.9543 [1.0000]	95.4% { 87.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (3)
Acquired: 2022/12/21 - 14:51

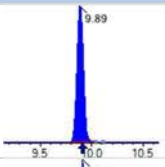
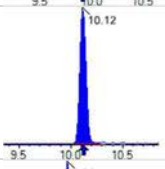
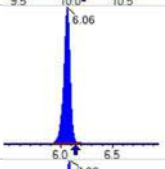
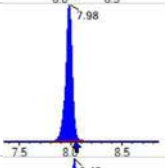
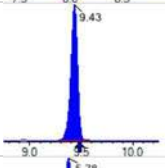
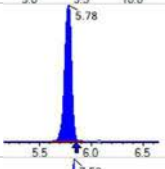
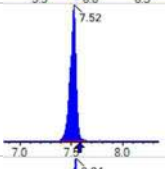
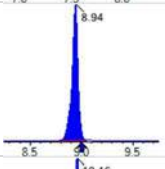
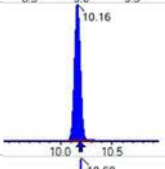
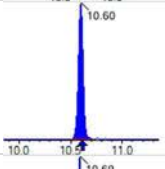
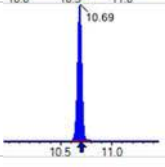
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 164172	(9.29 , N/A) (N/A , -0.05 , N/A)	395.8	N/A	0.8883 [1.0000]	88.8% { 94.4% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 382941	(7.99 , N/A) (N/A , -0.06 , N/A)	781.0	N/A	0.9486 [1.0000]	94.9% { 90.6% }			
13C4_PFOS_IIS	(502.8 / 79.9) 302129	(9.43 , N/A) (N/A , -0.05 , N/A)	425.5	N/A	0.9466 [1.0000]	94.7% { 92.2% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1150744	(3.65 , N/A) (N/A , -0.07 , N/A)	926.2	N/A	8.3617 [8.0000]	104.5% { 96.7% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 634958	(4.96 , N/A) (N/A , -0.08 , N/A)	725.6	N/A	4.3289 [4.0000]	108.2% { 91.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 507144	(6.11 , N/A) (N/A , -0.08 , N/A)	760.2	N/A	2.0905 [2.0000]	104.5% { 94.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 441364	(7.04 , N/A) (N/A , -0.07 , N/A)	592.1	N/A	2.0856 [2.0000]	104.3% { 89.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 438874	(7.86 , N/A) (N/A , -0.06 , N/A)	718.6	N/A	1.9633 [2.0000]	98.2% { 88.2% }			
13C9_PFNA_EIS	(472.0 / 427.0) 182699	(8.60 , N/A) (N/A , -0.07 , N/A)	305.7	N/A	0.9402 [1.0000]	94.0% { 83.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 284465	(9.29 , N/A) (N/A , -0.06 , N/A)	596.1	N/A	1.2183 [1.0000]	121.8% { 101.1% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 356973	(9.71 , N/A) (N/A , -0.02 , N/A)	765.7	N/A	1.0748 [1.0000]	107.5% { 89.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (3)
Acquired: 2022/12/21 - 14:51

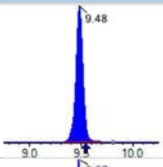
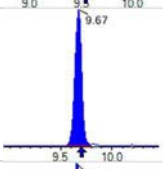
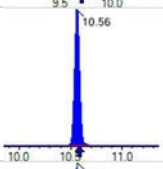
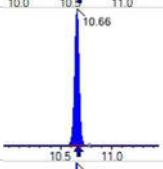
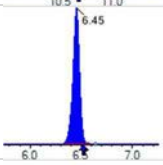
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 381316	(9.89 , N/A) (N/A , -0.02 , N/A)	333.2	N/A	1.1503 [1.0000]	115.0% { 98.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 230518	(10.12 , N/A) (N/A , -0.02 , N/A)	370.4	N/A	1.0471 [1.0000]	104.7% { 95.3% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1391867	(6.06 , N/A) (N/A , -0.08 , N/A)	799.8	N/A	2.1497 [2.0000]	107.5% { 101.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 670509	(7.98 , N/A) (N/A , -0.07 , N/A)	1003.2	N/A	1.9464 [2.0000]	97.3% { 88.9% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1081560	(9.43 , N/A) (N/A , -0.05 , N/A)	480.5	N/A	2.0858 [2.0000]	104.3% { 90.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 229082	(5.78 , N/A) (N/A , -0.08 , N/A)	619.0	N/A	4.1774 [4.0000]	104.4% { 102.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 294946	(7.52 , N/A) (N/A , -0.06 , N/A)	799.8	N/A	4.4673 [4.0000]	111.7% { 107.5% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 303660	(8.94 , N/A) (N/A , -0.06 , N/A)	479.0	N/A	4.5945 [4.0000]	114.9% { 102.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1318009	(10.16 , N/A) (N/A , -0.02 , N/A)	652.5	N/A	2.0109 [2.0000]	100.5% { 89.9% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 297155	(10.60 , N/A) (N/A , -0.01 , N/A)	855.7	N/A	2.0764 [2.0000]	103.8% { 90.0% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 291494	(10.69 , N/A) (N/A , -0.01 , N/A)	862.4	N/A	2.2065 [2.0000]	110.3% { 102.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (3)
Acquired: 2022/12/21 - 14:51

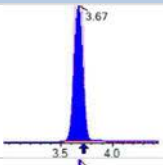
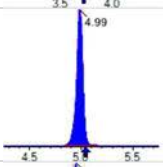
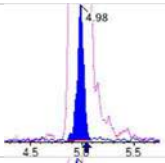
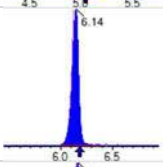
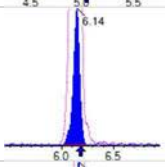
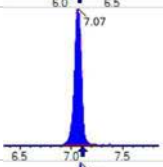
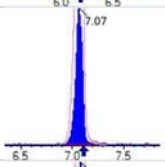
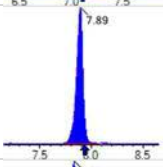
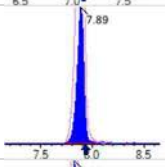
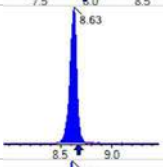
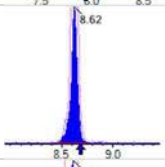
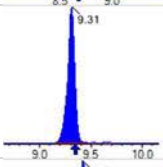
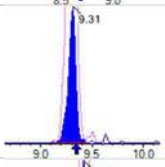
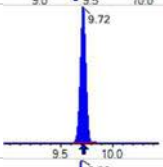
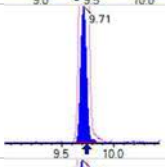
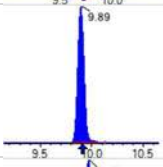
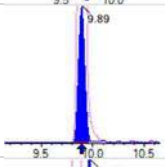
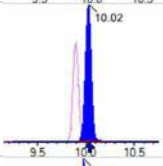
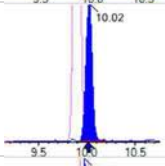
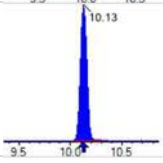
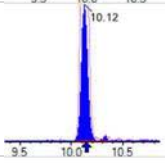
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 527024	(9.48 , N/A) (N/A , -0.05 , N/A)	346.8	N/A	4.2742 [4.0000]	106.9% { 103.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 458315	(9.67 , N/A) (N/A , -0.02 , N/A)	278.5	N/A	4.2171 [4.0000]	105.4% { 97.2% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 428676	(10.56 , N/A) (N/A , -0.01 , N/A)	1166.0	N/A	21.3333 [20.0000]	106.7% { 99.3% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 198093	(10.66 , N/A) (N/A , -0.01 , N/A)	1164.8	N/A	21.6544 [20.0000]	108.3% { 108.6% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1118507	(6.45 , N/A) (N/A , -0.07 , N/A)	638.3	N/A	8.6720 [8.0000]	108.4% { 95.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (4)
Acquired: 2022/12/21 - 15:04

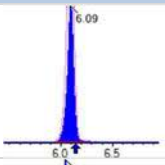
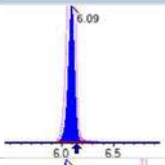
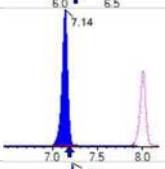
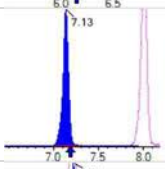
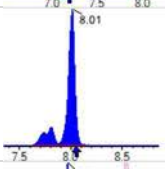
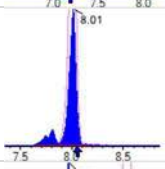
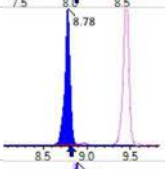
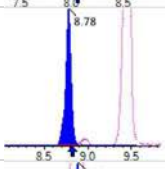
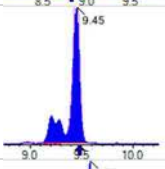
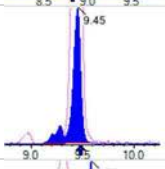
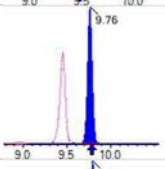
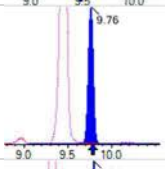
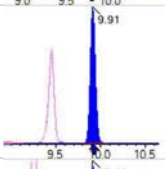
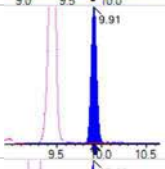
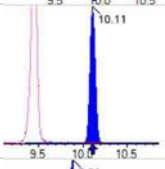
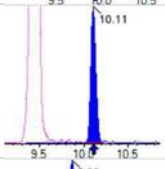
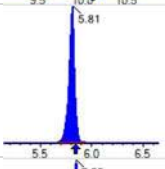
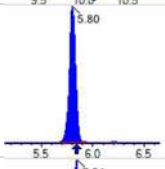
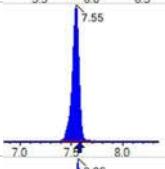
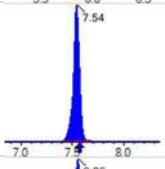
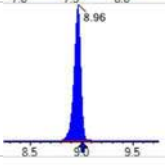
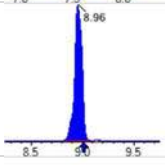
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 819896	(3.67 , 1.00) (0.00 , N/A , 0.0)	63.2	N/A 0.0 0.0	8.3322 [8.0000]	104.2%			
PFPeA	(262.9 / 219.0) 603288 (262.9 / 69.0) 6873	(4.99 , 1.00) (0.00 , N/A , 0.1)	714.5 139.6	0.0114 101.8 101.8	4.1560 [4.0000]	103.9%			
PFHxA	(313.0 / 269.0) 494481 (313.0 / 119.0) 48652	(6.14 , 1.00) (0.00 , N/A , -0.1)	480.7 302.7	0.0984 100.6 100.6	1.9728 [2.0000]	98.6%			
PFHpA	(363.0 / 319.0) 430799 (363.0 / 169.0) 129319	(7.07 , 1.00) (0.00 , N/A , -0.1)	617.2 361.9	0.3002 96.4 96.4	1.9616 [2.0000]	98.1%			
PFOA	(413.0 / 369.0) 498516 (413.0 / 169.0) 142531	(7.89 , 1.00) (0.00 , N/A , 0.1)	597.7 530.3	0.2859 87.5 87.5	1.9165 [2.0000]	95.8%			
PFNA	(463.0 / 419.0) 393754 (463.0 / 169.0) 83708	(8.63 , 1.00) (0.00 , N/A , 0.1)	416.4 106.0	0.2126 110.3 110.3	2.1745 [2.0000]	108.7%			
PFDA	(513.0 / 469.0) 564787 (513.0 / 169.0) 47750	(9.31 , 1.00) (0.01 , N/A , 0.1)	378.6 169.7	0.0845 88.5 88.5	2.2443 [2.0000]	112.2%			
PFUnA	(563.0 / 519.0) 658503 (563.0 / 169.0) 61653	(9.72 , 1.00) (0.00 , N/A , 0.4)	479.7 518.5	0.0936 107.8 107.8	2.0992 [2.0000]	105.0%			
PFDoA	(613.0 / 569.0) 675921 (613.0 / 169.0) 81123	(9.89 , 1.00) (0.00 , N/A , 0.2)	691.3 232.1	0.1200 86.2 86.2	1.9103 [2.0000]	95.5%			
PFTrDA	(663.0 / 619.0) 588988 (663.0 / 169.0) 110050	(10.02 , 1.01) (N/A , 0.00 , 0.1)	577.9 302.6	0.1868 91.3 91.3	1.9213 [2.0000]	96.1%			
PFTeDA	(713.0 / 669.0) 446345 (713.0 / 169.0) 83837	(10.13 , 1.00) (0.00 , N/A , 0.2)	486.0 629.5	0.1878 92.4 92.4	2.0034 [2.0000]	100.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (4)
Acquired: 2022/12/21 - 15:04

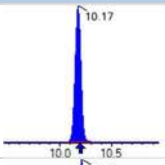
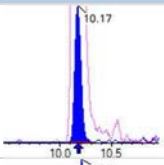
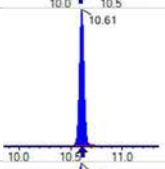
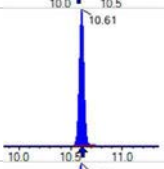
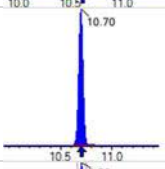
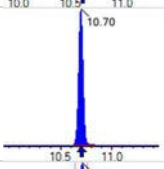
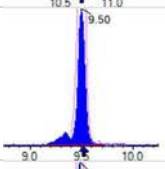
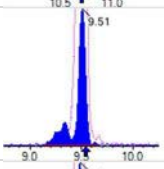
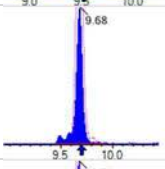
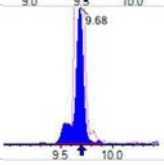
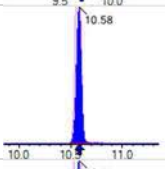
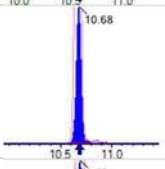
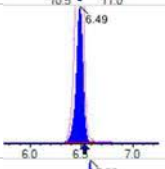
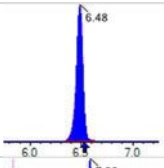
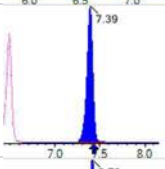
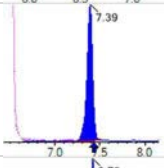
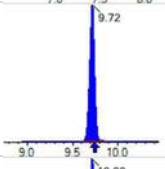
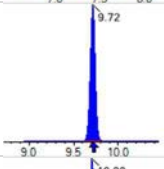
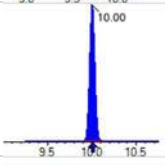
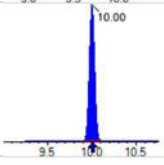
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 711903 (298.9 / 99.0) 484739	(6.09 , 1.00) (0.00 , N/A , 0.1)	731.9 757.9	0.6809 110.6 110.6	1.7756 [1.7695]	100.3%			
PFPeS	(349.0 / 80.0) 1288227 (349.0 / 99.0) 474774	(7.14 , 0.89) (N/A , -0.04 , 0.1)	707.6 705.0	0.3685 103.5 103.5	2.0076 [1.8768]	107.0%			
PFHxS	(399.0 / 80.0) 1027828 (399.0 / 99.0) 345011	(8.01 , 1.00) (0.00 , N/A , 0.0)	4264.5 49182.2	0.3357 99.9 99.9	1.8419 [1.8220]	101.1%			
PFHpS	(449.0 / 80.0) 977429 (449.0 / 99.0) 288763	(8.78 , 0.93) (N/A , -0.04 , 0.1)	730.0 481.1	0.2954 107.9 107.9	1.9191 [1.9028]	100.9%			
PFOS	(499.0 / 80.0) 1204037 (499.0 / 99.0) 223557	(9.45 , 1.00) (0.00 , N/A , 0.0)	87.9 105.3	0.1857 76.3 76.3	1.9004 [1.8550]	102.4%			
PFNS	(549.0 / 80.0) 1450440 (549.0 / 99.0) 305867	(9.76 , 1.03) (N/A , -0.01 , 0.0)	792.8 564.7	0.2109 86.4 86.4	2.0637 [1.9198]	107.5%			
PFDS	(599.0 / 80.0) 1519940 (599.0 / 99.0) 390353	(9.91 , 1.05) (N/A , -0.01 , -0.1)	861.1 462.0	0.2568 114.1 114.1	1.9480 [1.9262]	101.1%			
PFDoS	(698.9 / 80.0) 616036 (698.9 / 99.0) 122817	(10.11 , 1.07) (N/A , -0.01 , 0.2)	806.8 368.4	0.1994 81.5 81.5	1.8891 [1.9391]	97.4%			
4:2FTS	(327.0 / 307.0) 1460214 (327.0 / 81.0) 931969	(5.81 , 1.00) (0.00 , N/A , 0.3)	781.6 741.8	0.6382 129.2 129.2	7.3058 [7.4762]	97.7%			
6:2FTS	(427.0 / 407.0) 816068 (427.0 / 81.0) 629698	(7.55 , 1.00) (0.00 , N/A , 0.2)	696.5 806.5	0.7716 99.2 99.2	8.1240 [7.5923]	107.0%			
8:2FTS	(527.0 / 507.0) 874574 (527.0 / 81.0) 575440	(8.96 , 1.00) (0.00 , N/A , 0.1)	521.2 496.1	0.6580 116.2 116.2	7.8272 [7.6663]	102.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (4)
Acquired: 2022/12/21 - 15:04

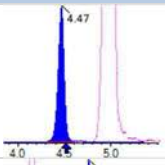
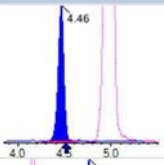
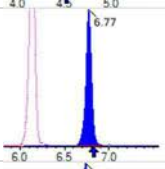
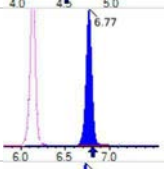
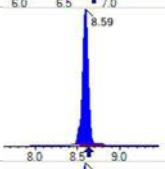
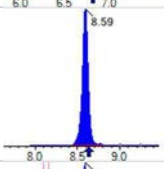
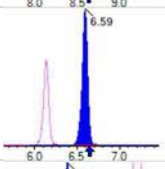
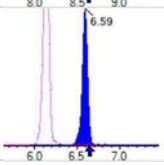
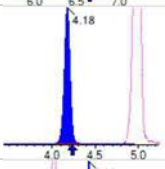
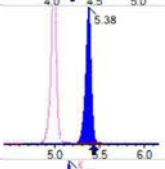
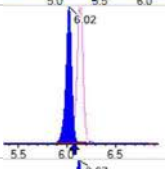
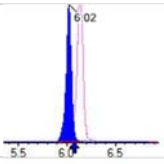
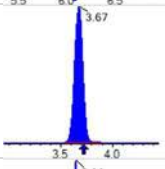
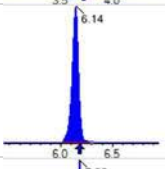
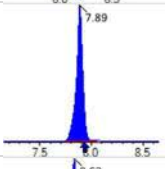
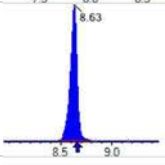
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 1485959 (498.0 / 478.0) 31674	(10.17 , 1.00) (0.00 , N/A , 0.2)	990.0 142.4	0.0213 102.3 102.3	2.1663 [2.0000]	108.3%			
NMeFOSA	(511.9 / 219.0) 1078575 (511.9 / 169.0) 708121	(10.61 , 1.00) (0.00 , N/A , 0.0)	1225.7 994.7	0.6565 91.2 91.2	8.7756 [8.0000]	109.7%			
NEtFOSA	(526.0 / 219.0) 1148331 (526.0 / 169.0) 1200365	(10.70 , 1.00) (0.00 , N/A , 0.0)	776.2 1306.9	1.0453 98.8 98.8	8.6933 [8.0000]	108.7%			
NMeFOSAA	(570.0 / 419.0) 241345 (570.0 / 483.0) 110259	(9.50 , 1.00) (0.00 , N/A , -0.4)	387.8 310.6	0.4569 74.3 74.3	2.3829 [2.0000]	119.1%			
NEtFOSAA	(584.0 / 419.0) 216496 (584.0 / 526.0) 131164	(9.68 , 1.00) (0.00 , N/A , -0.3)	488.0 17276.9	0.6059 82.6 82.6	1.8426 [2.0000]	92.1%			
NMeFOSE	(616.1 / 59.0) 263519	(10.58 , 1.00) (0.01 , N/A , 0.0)	1098.0	N/A 0.0 0.0	8.8080 [8.0000]	110.1%			
NEtFOSE	(630.0 / 59.0) 44341	(10.68 , 1.00) (0.01 , N/A , 0.0)	785.9	N/A 0.0 0.0	8.2657 [8.0000]	103.3%			
HFPO-DA	(285.0 / 169.0) 361196 (285.0 / 185.0) 1050555	(6.49 , 1.00) (0.00 , N/A , 0.1)	772.7 816.6	2.9085 106.0 106.0	4.2149 [4.0000]	105.4%			
ADONA	(377.0 / 85.0) 1531070 (377.0 / 251.0) 192620	(7.39 , 1.14) (N/A , -0.04 , 0.0)	808.7 452.2	0.1258 101.0 101.0	4.0224 [3.7708]	106.7%			
9Cl-Pf3ONS	(531.0 / 351.0) 4127226 (533.0 / 353.0) 1353329	(9.72 , 1.50) (N/A , -0.01 , 0.1)	633.0 677.8	0.3279 110.8 110.8	3.9027 [3.7330]	104.5%			
11Cl-PF3OUDS	(631.0 / 451.0) 2164994 (633.0 / 453.0) 639114	(10.00 , 1.54) (N/A , -0.01 , 0.2)	1045.2 822.2	0.2952 89.2 89.2	4.0695 [3.7728]	107.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (4)
Acquired: 2022/12/21 - 15:04

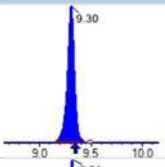
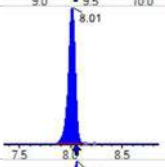
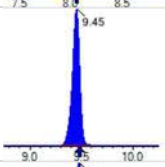
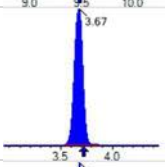
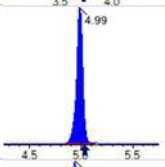
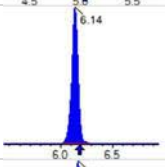
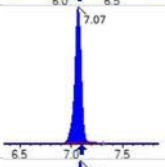
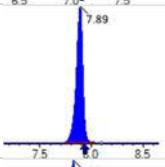
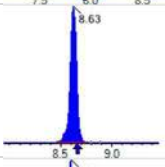
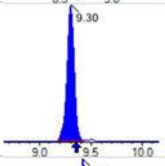
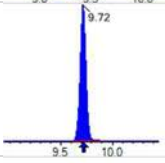
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 40453 (241.0 / 117.0) 66448	(4.47 , 0.90) (N/A , -0.05 , 0.1)	490.7 413.9	1.6426 98.2 98.2	8.0746 [8.0000]	100.9%			
5:3FTCA	(341.0 / 236.7) 329758 (341.0 / 217.0) 527254	(6.77 , 1.10) (N/A , -0.05 , 0.1)	661.0 537.3	1.5989 109.2 109.2	7.4457 [8.0000]	93.1%			
7:3FTCA	(441.0 / 317.0) 392499 (441.0 / 337.0) 316116	(8.59 , 1.40) (N/A , -0.04 , 0.1)	337.8 309.6	0.8054 96.2 96.2	7.7021 [8.0000]	96.3%			
PFEESA	(315.0 / 135.0) 963848 (315.0 / 83.0) 290484	(6.59 , 1.07) (N/A , -0.05 , 0.0)	701.2 684.7	0.3014 98.2 98.2	3.5124 [3.5698]	98.4%			
PFMPA	(229.0 / 85.0) 159859	(4.18 , 0.84) (N/A , -0.05 , 0.0)	785.7	N/A 0.0 0.0	4.0125 [4.0000]	100.3%			
PFMBA	(279.0 / 85.0) 557038	(5.38 , 1.08) (N/A , -0.05 , 0.0)	765.0	N/A 0.0 0.0	4.0451 [4.0000]	101.1%			
NFDHA	(295.0 / 201.0) 513792 (295.0 / 85.0) 442175	(6.02 , 0.98) (N/A , -0.05 , 0.0)	639.9 677.3	0.8606 97.5 97.5	4.0653 [4.0000]	101.6%			
13C3_PFBA_IIS	(216.0 / 172.0) 147062	(3.67 , N/A) (N/A , -0.05 , N/A)	798.2	N/A	1.0565 [1.0000]	105.7% { 96.9% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 235070	(6.14 , N/A) (N/A , -0.04 , N/A)	582.4	N/A	1.0180 [1.0000]	101.8% { 100.5% }			
13C4_PFOA_IIS	(417.0 / 372.0) 228180	(7.89 , N/A) (N/A , -0.04 , N/A)	542.9	N/A	1.0379 [1.0000]	103.8% { 95.9% }			
13C5_PFNA_IIS	(468.0 / 423.0) 190318	(8.63 , N/A) (N/A , -0.04 , N/A)	398.2	N/A	1.0277 [1.0000]	102.8% { 94.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (4)
Acquired: 2022/12/21 - 15:04

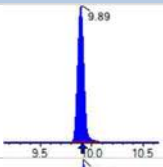
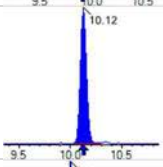
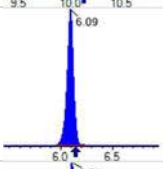
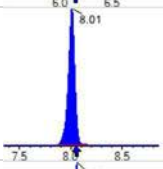
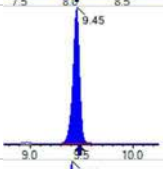
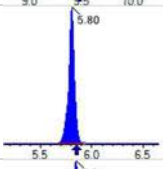
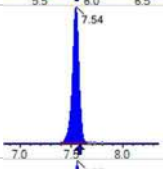
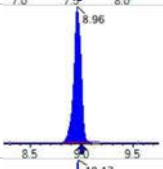
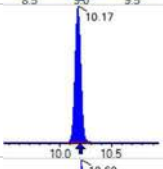
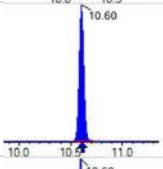
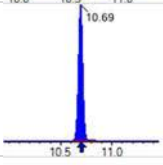
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 163196	(9.30 , N/A) (N/A , -0.04 , N/A)	351.2	N/A	0.8831 [1.0000]	88.3% { 93.9% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 399114	(8.01 , N/A) (N/A , -0.04 , N/A)	644.1	N/A	0.9886 [1.0000]	98.9% { 94.4% }			
13C4_PFOS_IIS	(502.8 / 79.9) 313371	(9.45 , N/A) (N/A , -0.03 , N/A)	470.2	N/A	0.9818 [1.0000]	98.2% { 95.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1206655	(3.67 , N/A) (N/A , -0.05 , N/A)	920.8	N/A	7.9721 [8.0000]	99.7% { 101.3% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 661139	(4.99 , N/A) (N/A , -0.05 , N/A)	803.5	N/A	4.0422 [4.0000]	101.1% { 95.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 583697	(6.14 , N/A) (N/A , -0.05 , N/A)	813.5	N/A	2.1578 [2.0000]	107.9% { 108.3% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 481858	(7.07 , N/A) (N/A , -0.04 , N/A)	625.4	N/A	2.0419 [2.0000]	102.1% { 98.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 529026	(7.89 , N/A) (N/A , -0.04 , N/A)	717.1	N/A	2.1141 [2.0000]	105.7% { 106.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 211031	(8.63 , N/A) (N/A , -0.04 , N/A)	522.0	N/A	1.0084 [1.0000]	100.8% { 96.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 264380	(9.30 , N/A) (N/A , -0.04 , N/A)	286.1	N/A	1.1391 [1.0000]	113.9% { 94.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 396942	(9.72 , N/A) (N/A , -0.01 , N/A)	636.0	N/A	1.2023 [1.0000]	120.2% { 99.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (4)
Acquired: 2022/12/21 - 15:04

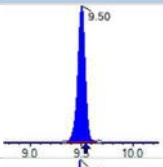
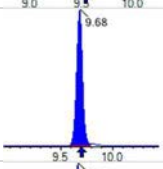
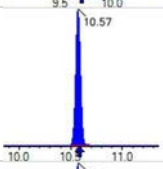
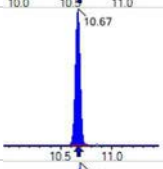
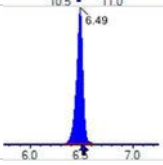
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 410435	(9.89 , N/A) (N/A , -0.01 , N/A)	625.4	N/A	1.2456 [1.0000]	124.6% { 105.9% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 251385	(10.12 , N/A) (N/A , -0.01 , N/A)	364.3	N/A	1.1487 [1.0000]	114.9% { 103.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1462627	(6.09 , N/A) (N/A , -0.05 , N/A)	798.2	N/A	2.1675 [2.0000]	108.4% { 106.5% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 718366	(8.01 , N/A) (N/A , -0.04 , N/A)	884.3	N/A	2.0008 [2.0000]	100.0% { 95.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1167403	(9.45 , N/A) (N/A , -0.03 , N/A)	347.8	N/A	2.1706 [2.0000]	108.5% { 98.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 241790	(5.80 , N/A) (N/A , -0.05 , N/A)	780.0	N/A	4.2305 [4.0000]	105.8% { 107.9% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 261330	(7.54 , N/A) (N/A , -0.04 , N/A)	519.2	N/A	3.7978 [4.0000]	94.9% { 95.2% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 282103	(8.96 , N/A) (N/A , -0.04 , N/A)	454.9	N/A	4.0954 [4.0000]	102.4% { 95.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1451627	(10.17 , N/A) (N/A , -0.01 , N/A)	856.3	N/A	2.1353 [2.0000]	106.8% { 99.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 301552	(10.60 , N/A) (N/A , 0.00 , N/A)	1022.7	N/A	2.0316 [2.0000]	101.6% { 91.4% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 292885	(10.69 , N/A) (N/A , 0.00 , N/A)	1224.3	N/A	2.1375 [2.0000]	106.9% { 102.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (4)
Acquired: 2022/12/21 - 15:04

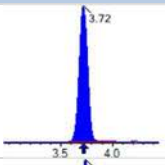
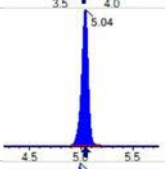
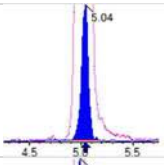
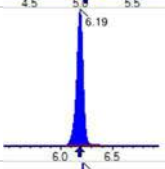
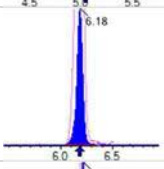
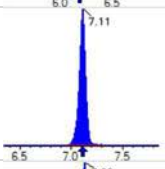
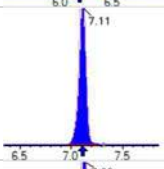
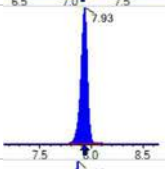
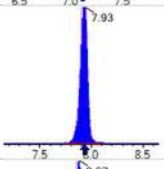
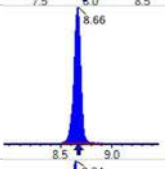
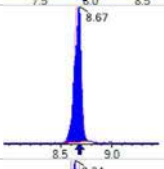
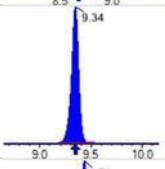
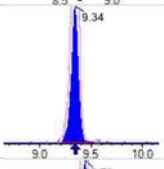
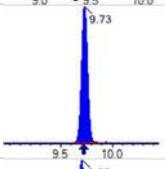
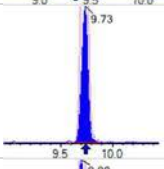
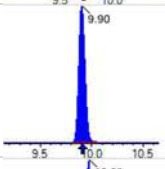
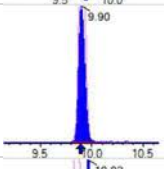
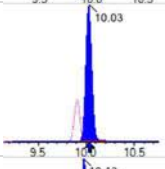
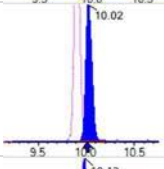
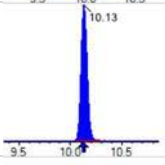
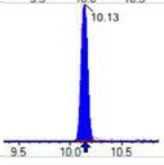
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 519867	(9.50 , N/A) (N/A , -0.03 , N/A)	351.6	N/A	4.0649 [4.0000]	101.6% { 101.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 523494	(9.68 , N/A) (N/A , -0.01 , N/A)	328.8	N/A	4.6440 [4.0000]	116.1% { 111.1% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 474063	(10.57 , N/A) (N/A , 0.00 , N/A)	906.7	N/A	22.7456 [20.0000]	113.7% { 109.8% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 209537	(10.67 , N/A) (N/A , -0.01 , N/A)	1132.4	N/A	22.0836 [20.0000]	110.4% { 114.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1127924	(6.49 , N/A) (N/A , -0.04 , N/A)	814.1	N/A	7.8424 [8.0000]	98.0% { 96.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (5)
Acquired: 2022/12/21 - 15:17

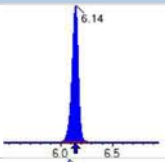
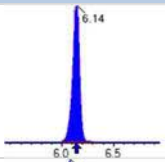
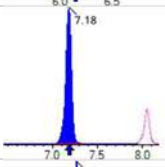
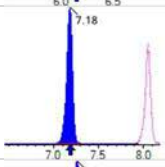
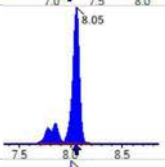
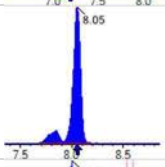
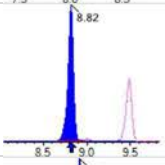
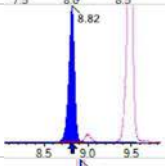
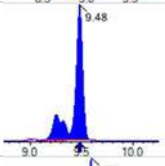
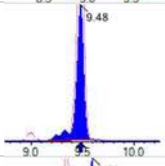
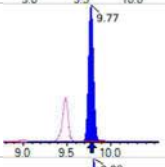
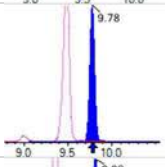
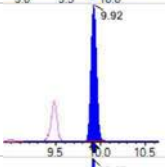
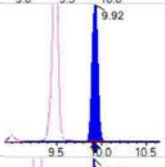
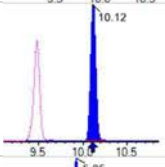
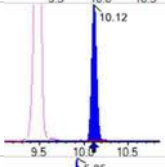
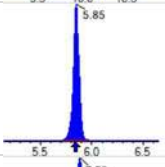
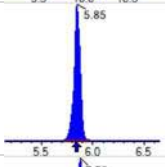
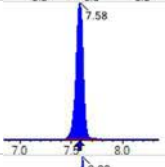
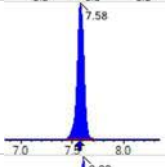
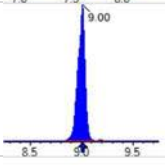
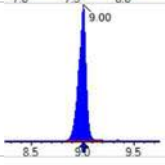
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 1990225	(3.72 , 1.00) (0.00 , N/A , 0.0)	64.8	N/A 0.0 0.0	20.4982 [20.0000]	102.5%			
PFPeA	(262.9 / 219.0) 1442100 (262.9 / 69.0) 16141	(5.04 , 1.00) (0.00 , N/A , 0.1)	681.9 331.7	0.0112 100.0 100.0	9.4373 [10.0000]	94.4%			
PFHxA	(313.0 / 269.0) 1106970 (313.0 / 119.0) 108235	(6.19 , 1.00) (0.00 , N/A , 0.1)	659.6 460.1	0.0978 100.0 100.0	4.7836 [5.0000]	95.7%			
PFHpA	(363.0 / 319.0) 1091562 (363.0 / 169.0) 339999	(7.11 , 1.00) (0.00 , N/A , 0.0)	794.0 590.8	0.3115 100.0 100.0	4.8774 [5.0000]	97.5%			
PFOA	(413.0 / 369.0) 1178218 (413.0 / 169.0) 385050	(7.93 , 1.00) (0.00 , N/A , 0.1)	590.9 623.3	0.3268 100.0 100.0	4.8153 [5.0000]	96.3%			
PFNA	(463.0 / 419.0) 1009822 (463.0 / 169.0) 194634	(8.66 , 1.00) (0.00 , N/A , -0.5)	531.9 118.3	0.1927 100.0 100.0	5.3804 [5.0000]	107.6%			
PFDA	(513.0 / 469.0) 1239600 (513.0 / 169.0) 118484	(9.34 , 1.00) (0.00 , N/A , 0.1)	438.5 380.8	0.0956 100.0 100.0	4.6297 [5.0000]	92.6%			
PFUnA	(563.0 / 519.0) 1546203 (563.0 / 169.0) 134285	(9.73 , 1.00) (0.00 , N/A , -0.2)	836.4 434.5	0.0868 100.0 100.0	4.9118 [5.0000]	98.2%			
PFDoA	(613.0 / 569.0) 1581806 (613.0 / 169.0) 220234	(9.90 , 1.00) (0.00 , N/A , 0.1)	474.2 387.0	0.1392 100.0 100.0	4.7333 [5.0000]	94.7%			
PFTrDA	(663.0 / 619.0) 1328428 (663.0 / 169.0) 271899	(10.03 , 1.01) (N/A , 0.00 , 0.0)	609.2 325.8	0.2047 100.0 100.0	4.5881 [5.0000]	91.8%			
PFTeDA	(713.0 / 669.0) 1063699 (713.0 / 169.0) 216340	(10.13 , 1.00) (0.00 , N/A , -0.2)	630.3 402.5	0.2034 100.0 100.0	4.9622 [5.0000]	99.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (5)
Acquired: 2022/12/21 - 15:17

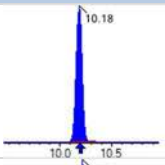
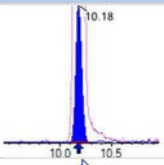
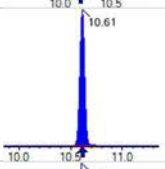
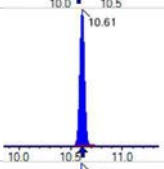
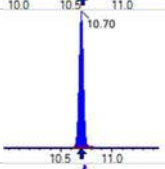
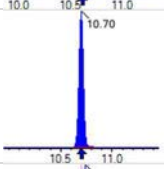
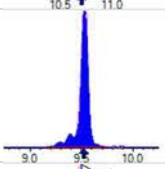
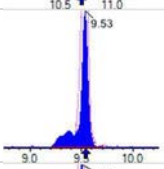
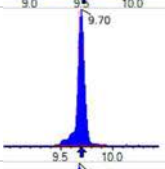
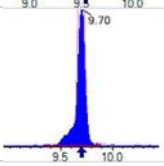
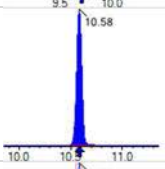
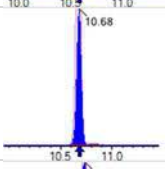
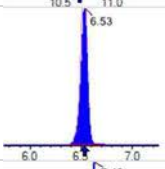
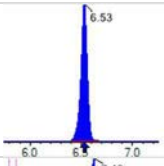
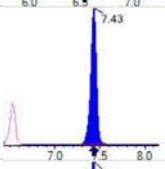
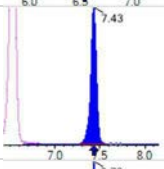
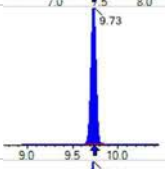
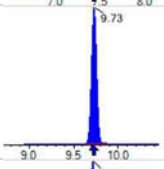
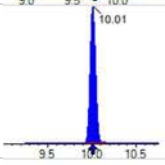
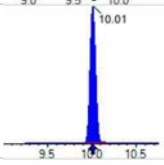
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 1813615 (298.9 / 99.0) 1116198	(6.14 , 1.00) (0.00 , N/A , 0.0)	768.3 703.2	0.6155 100.0 100.0	4.8171 [4.4237]	108.9%			
PFPeS	(349.0 / 80.0) 3187262 (349.0 / 99.0) 1134601	(7.18 , 0.89) (N/A , 0.00 , 0.0)	946.8 863.6	0.3560 100.0 100.0	4.7330 [4.6919]	100.9%			
PFHxS	(399.0 / 80.0) 2633681 (399.0 / 99.0) 885281	(8.05 , 1.00) (0.00 , N/A , 0.1)	3311.5 3041.5	0.3361 100.0 100.0	4.4972 [4.5549]	98.7%			
PFHpS	(449.0 / 80.0) 2438304 (449.0 / 99.0) 667404	(8.82 , 0.93) (N/A , 0.00 , 0.1)	775.3 642.6	0.2737 100.0 100.0	4.6954 [4.7570]	98.7%			
PFOS	(499.0 / 80.0) 2788138 (499.0 / 99.0) 678060	(9.48 , 1.00) (0.00 , N/A , 0.1)	106.0 147.7	0.2432 100.0 100.0	4.3161 [4.6375]	93.1%			
PFNS	(549.0 / 80.0) 3204059 (549.0 / 99.0) 781912	(9.77 , 1.03) (N/A , 0.00 , -0.2)	897.4 623.4	0.2440 100.0 100.0	4.4712 [4.7994]	93.2%			
PFDS	(599.0 / 80.0) 3838984 (599.0 / 99.0) 864091	(9.92 , 1.05) (N/A , 0.00 , -0.1)	900.9 980.5	0.2251 100.0 100.0	4.8256 [4.8155]	100.2%			
PFDoS	(698.9 / 80.0) 1471553 (698.9 / 99.0) 360040	(10.12 , 1.07) (N/A , 0.00 , 0.1)	998.7 645.8	0.2447 100.0 100.0	4.4257 [4.8478]	91.3%			
4:2FTS	(327.0 / 307.0) 4028733 (327.0 / 81.0) 1990132	(5.85 , 1.00) (0.00 , N/A , -0.1)	873.0 781.7	0.4940 100.0 100.0	21.7465 [18.6906]	116.4%			
6:2FTS	(427.0 / 407.0) 1996255 (427.0 / 81.0) 1553538	(7.58 , 1.00) (0.00 , N/A , 0.1)	795.2 949.1	0.7782 100.0 100.0	18.9232 [18.9808]	99.7%			
8:2FTS	(527.0 / 507.0) 2012330 (527.0 / 81.0) 1139036	(9.00 , 1.00) (0.00 , N/A , 0.0)	497.7 645.4	0.5660 100.0 100.0	17.1622 [19.1658]	89.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (5)
Acquired: 2022/12/21 - 15:17

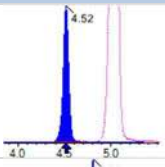
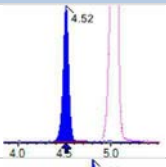
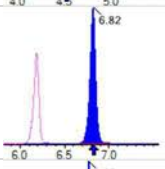
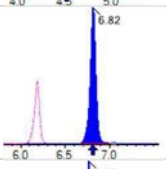
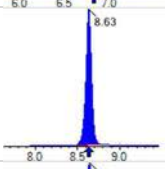
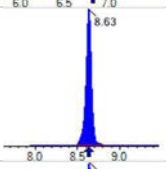
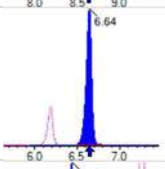
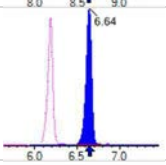
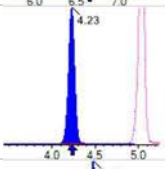
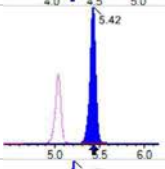
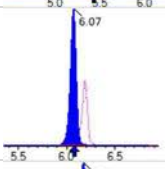
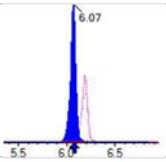
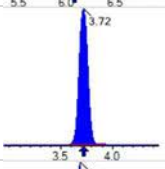
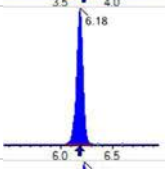
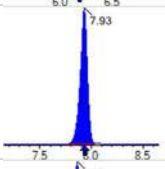
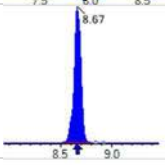
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 3270792 (498.0 / 478.0) 68177	(10.18 , 1.00) (0.00 , N/A , 0.2)	829.1 239.1	0.0208 100.0 100.0	4.7234 [5.0000]	94.5%			
NMeFOSA	(511.9 / 219.0) 2491137 (511.9 / 169.0) 1794272	(10.61 , 1.00) (0.00 , N/A , 0.0)	1462.0 1077.7	0.7203 100.0 100.0	18.5213 [20.0000]	92.6%			
NEtFOSA	(526.0 / 219.0) 2678351 (526.0 / 169.0) 2832868	(10.70 , 1.00) (0.00 , N/A , 0.1)	1554.8 1249.8	1.0577 100.0 100.0	20.8662 [20.0000]	104.3%			
NMeFOSAA	(570.0 / 419.0) 486745 (570.0 / 483.0) 299202	(9.53 , 1.00) (0.00 , N/A , -0.2)	573.1 562.9	0.6147 100.0 100.0	4.8937 [5.0000]	97.9%			
NEtFOSAA	(584.0 / 419.0) 490783 (584.0 / 526.0) 359842	(9.70 , 1.00) (0.00 , N/A , -0.1)	632.4 1809.1	0.7332 100.0 100.0	4.6394 [5.0000]	92.8%			
NMeFOSE	(616.1 / 59.0) 543390	(10.58 , 1.00) (0.01 , N/A , 0.0)	1051.7	N/A 0.0 0.0	19.9513 [20.0000]	99.8%			
NEtFOSE	(630.0 / 59.0) 87164	(10.68 , 1.00) (0.01 , N/A , 0.0)	921.6	N/A 0.0 0.0	18.6613 [20.0000]	93.3%			
HFPO-DA	(285.0 / 169.0) 898919 (285.0 / 185.0) 2467337	(6.53 , 1.00) (0.00 , N/A , 0.1)	856.6 806.8	2.7448 100.0 100.0	10.0733 [10.0000]	100.7%			
ADONA	(377.0 / 85.0) 3868840 (377.0 / 251.0) 481766	(7.43 , 1.14) (N/A , 0.00 , 0.0)	954.1 756.2	0.1245 100.0 100.0	9.7608 [9.4270]	103.5%			
9Cl-Pf3ONS	(531.0 / 351.0) 10282118 (533.0 / 353.0) 3043082	(9.73 , 1.49) (N/A , 0.00 , 0.1)	1040.7 769.1	0.2960 100.0 100.0	9.5629 [9.3325]	102.5%			
11Cl-PF3OUDS	(631.0 / 451.0) 5063261 (633.0 / 453.0) 1675005	(10.01 , 1.53) (N/A , 0.00 , 0.0)	1182.7 681.6	0.3308 100.0 100.0	9.1397 [9.4321]	96.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (5)
Acquired: 2022/12/21 - 15:17

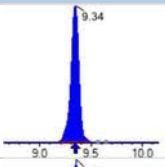
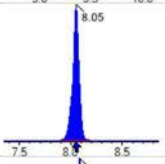
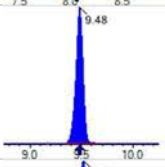
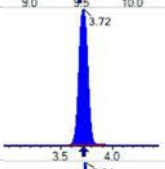
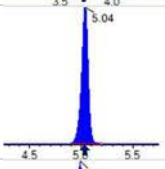
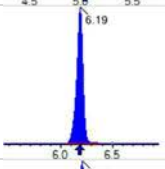
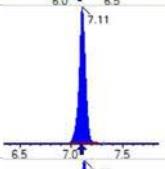
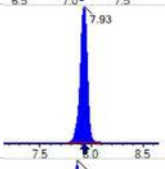
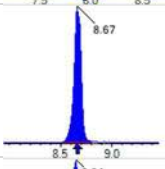
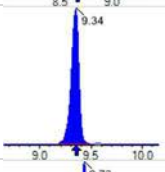
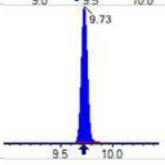
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 99522 (241.0 / 117.0) 166546	(4.52 , 0.90) (N/A , 0.00 , 0.0)	656.3 515.8	1.6734 100.0 100.0	18.8712 [20.0000]	94.4%			
5:3FTCA	(341.0 / 236.7) 874302 (341.0 / 217.0) 1279737	(6.82 , 1.10) (N/A , 0.00 , 0.1)	614.2 617.8	1.4637 100.0 100.0	21.3819 [20.0000]	106.9%			
7:3FTCA	(441.0 / 317.0) 962379 (441.0 / 337.0) 805964	(8.63 , 1.40) (N/A , 0.00 , 0.0)	516.9 404.8	0.8375 100.0 100.0	20.4549 [20.0000]	102.3%			
PFEESA	(315.0 / 135.0) 2085285 (315.0 / 83.0) 640190	(6.64 , 1.07) (N/A , 0.00 , 0.1)	832.1 689.8	0.3070 100.0 100.0	8.2307 [8.9246]	92.2%			
PFMPA	(229.0 / 85.0) 396790	(4.23 , 0.84) (N/A , 0.00 , 0.0)	1072.7	N/A 0.0 0.0	9.4611 [10.0000]	94.6%			
PFMBA	(279.0 / 85.0) 1416279	(5.42 , 1.08) (N/A , 0.00 , 0.0)	830.4	N/A 0.0 0.0	9.7700 [10.0000]	97.7%			
NFDHA	(295.0 / 201.0) 1199740 (295.0 / 85.0) 1059117	(6.07 , 0.98) (N/A , 0.00 , 0.0)	939.5 917.5	0.8828 100.0 100.0	10.2818 [10.0000]	102.8%			
13C3_PFBA_IIS	(216.0 / 172.0) 151758	(3.72 , N/A) (N/A , 0.00 , N/A)	805.9	N/A	1.0903 [1.0000]	109.0% { 100.0% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 233958	(6.18 , N/A) (N/A , 0.00 , N/A)	558.9	N/A	1.0132 [1.0000]	101.3% { 100.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 238020	(7.93 , N/A) (N/A , 0.00 , N/A)	686.2	N/A	1.0827 [1.0000]	108.3% { 100.0% }			
13C5_PFNA_IIS	(468.0 / 423.0) 202298	(8.67 , N/A) (N/A , 0.00 , N/A)	356.6	N/A	1.0924 [1.0000]	109.2% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (5)
Acquired: 2022/12/21 - 15:17

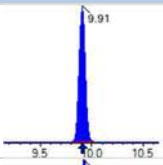
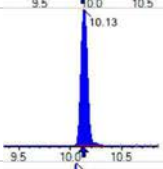
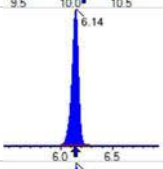
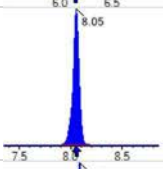
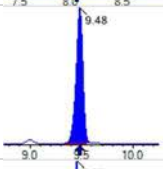
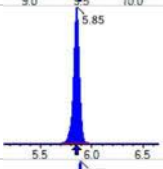
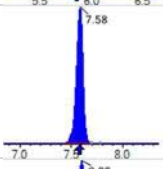
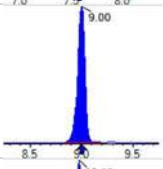
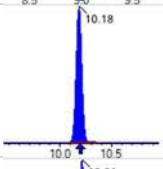
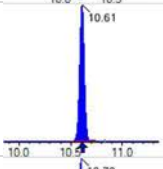
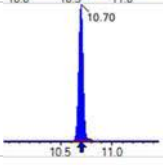
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 173856	(9.34 , N/A) (N/A , 0.00 , N/A)	302.9	N/A	0.9407 [1.0000]	94.1% { 100.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 422692	(8.05 , N/A) (N/A , 0.00 , N/A)	772.0	N/A	1.0470 [1.0000]	104.7% { 100.0% }			
13C4_PFOS_IIS	(502.8 / 79.9) 327849	(9.48 , N/A) (N/A , 0.00 , N/A)	486.2	N/A	1.0272 [1.0000]	102.7% { 100.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1190617	(3.72 , N/A) (N/A , 0.00 , N/A)	806.1	N/A	7.6228 [8.0000]	95.3% { 100.0% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 695964	(5.04 , N/A) (N/A , 0.00 , N/A)	743.0	N/A	4.2753 [4.0000]	106.9% { 100.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 538902	(6.19 , N/A) (N/A , 0.00 , N/A)	577.5	N/A	2.0016 [2.0000]	100.1% { 100.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 491038	(7.11 , N/A) (N/A , 0.00 , N/A)	663.4	N/A	2.0907 [2.0000]	104.5% { 100.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 497637	(7.93 , N/A) (N/A , 0.00 , N/A)	494.4	N/A	1.9065 [2.0000]	95.3% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 218730	(8.67 , N/A) (N/A , 0.00 , N/A)	468.8	N/A	0.9833 [1.0000]	98.3% { 100.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 281293	(9.34 , N/A) (N/A , 0.00 , N/A)	304.6	N/A	1.1376 [1.0000]	113.8% { 100.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 398330	(9.73 , N/A) (N/A , 0.00 , N/A)	590.9	N/A	1.1326 [1.0000]	113.3% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (5)
Acquired: 2022/12/21 - 15:17

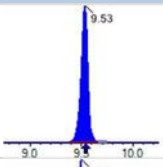
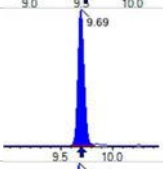
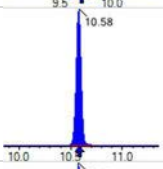
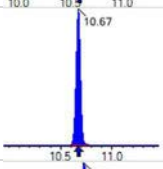
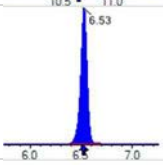
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 387652	(9.91 , N/A) (N/A , 0.00 , N/A)	408.6	N/A	1.1043 [1.0000]	110.4% { 100.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 241867	(10.13 , N/A) (N/A , 0.00 , N/A)	473.7	N/A	1.0375 [1.0000]	103.7% { 100.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1373432	(6.14 , N/A) (N/A , 0.00 , N/A)	693.8	N/A	1.9218 [2.0000]	96.1% { 100.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 753903	(8.05 , N/A) (N/A , 0.00 , N/A)	856.1	N/A	1.9827 [2.0000]	99.1% { 100.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1190292	(9.48 , N/A) (N/A , 0.00 , N/A)	261.7	N/A	2.1154 [2.0000]	105.8% { 100.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 224114	(5.85 , N/A) (N/A , 0.00 , N/A)	886.7	N/A	3.7025 [4.0000]	92.6% { 100.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 274445	(7.58 , N/A) (N/A , 0.00 , N/A)	671.5	N/A	3.7659 [4.0000]	94.1% { 100.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 296038	(9.00 , N/A) (N/A , 0.00 , N/A)	428.2	N/A	4.0579 [4.0000]	101.4% { 100.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1465391	(10.18 , N/A) (N/A , 0.00 , N/A)	879.9	N/A	2.0603 [2.0000]	103.0% { 100.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 330001	(10.61 , N/A) (N/A , 0.00 , N/A)	806.2	N/A	2.1251 [2.0000]	106.3% { 100.0% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 284603	(10.70 , N/A) (N/A , 0.00 , N/A)	963.7	N/A	1.9853 [2.0000]	99.3% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL5
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (5)
Acquired: 2022/12/21 - 15:17

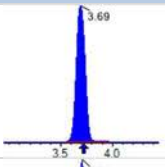
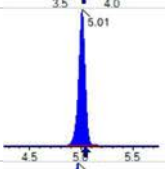
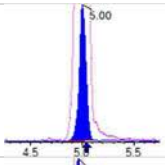
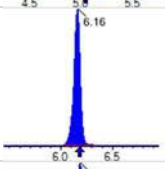
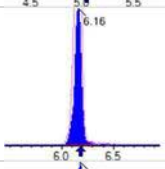
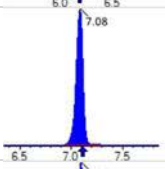
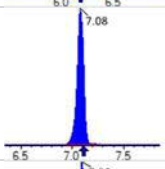
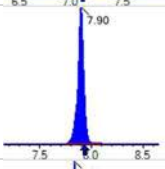
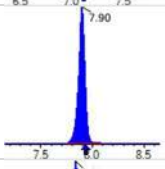
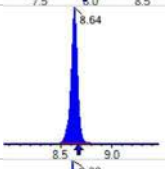
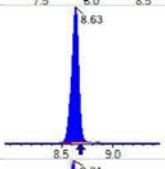
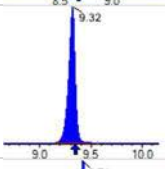
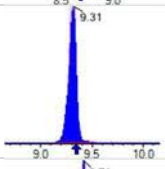
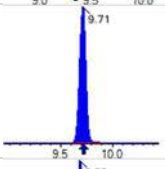
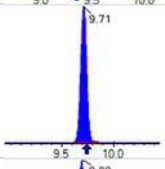
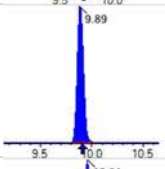
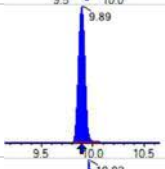
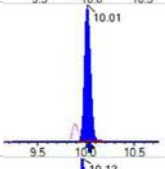
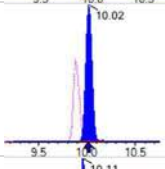
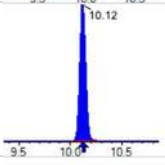
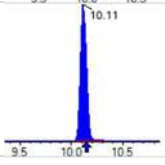
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 510539	(9.53 , N/A) (N/A , 0.00 , N/A)	423.7	N/A	3.8157 [4.0000]	95.4% { 100.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 471317	(9.69 , N/A) (N/A , 0.00 , N/A)	312.2	N/A	3.9965 [4.0000]	99.9% { 100.0% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 431560	(10.58 , N/A) (N/A , 0.00 , N/A)	1437.5	N/A	19.7920 [20.0000]	99.0% { 100.0% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 182445	(10.67 , N/A) (N/A , 0.00 , N/A)	924.0	N/A	18.3793 [20.0000]	91.9% { 100.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1174542	(6.53 , N/A) (N/A , 0.00 , N/A)	891.8	N/A	8.2053 [8.0000]	102.6% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (6)
Acquired: 2022/12/21 - 15:30

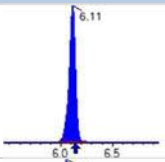
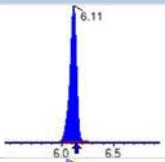
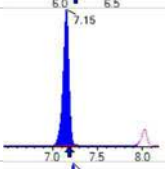
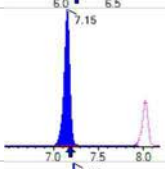
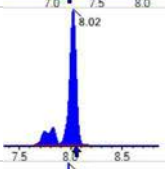
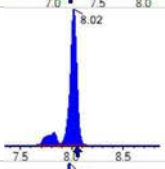
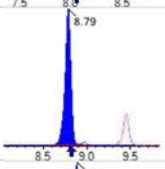
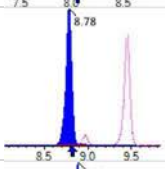
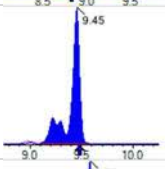
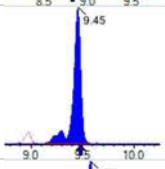
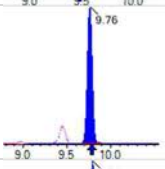
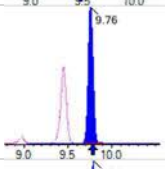
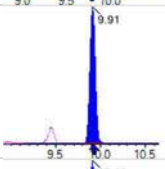
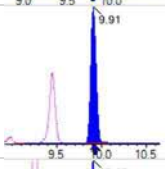
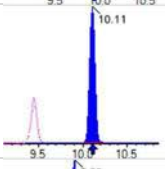
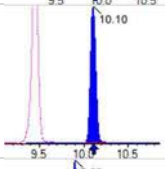
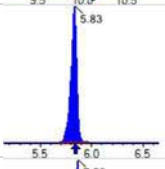
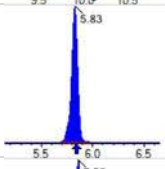
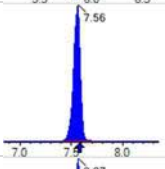
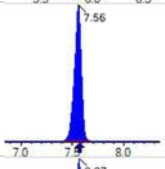
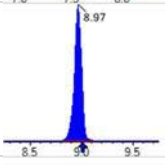
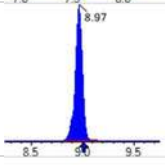
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 4050226	(3.69 , 1.00) (0.00 , N/A , 0.0)	65.3	N/A 0.0 0.0	42.6736 [40.0000]	106.7%			
PFPeA	(262.9 / 219.0) 2824768 (262.9 / 69.0) 30797	(5.01 , 1.00) (0.00 , N/A , 0.2)	725.3 354.5	0.0109 97.4 97.4	19.8721 [20.0000]	99.4%			
PFHxA	(313.0 / 269.0) 2355853 (313.0 / 119.0) 216426	(6.16 , 1.00) (0.00 , N/A , 0.1)	630.0 576.1	0.0919 94.0 94.0	9.7663 [10.0000]	97.7%			
PFHpA	(363.0 / 319.0) 2097907 (363.0 / 169.0) 669756	(7.08 , 1.00) (0.00 , N/A , 0.1)	650.6 555.8	0.3192 102.5 102.5	9.6572 [10.0000]	96.6%			
PFOA	(413.0 / 369.0) 2460865 (413.0 / 169.0) 754807	(7.90 , 1.00) (0.00 , N/A , 0.0)	797.2 515.8	0.3067 93.9 93.9	10.0578 [10.0000]	100.6%			
PFNA	(463.0 / 419.0) 1917681 (463.0 / 169.0) 398931	(8.64 , 1.00) (0.00 , N/A , 0.0)	698.0 110.9	0.2080 107.9 107.9	9.9870 [10.0000]	99.9%			
PFDA	(513.0 / 469.0) 2731475 (513.0 / 169.0) 237718	(9.32 , 1.00) (0.01 , N/A , 0.1)	431.9 384.2	0.0870 91.1 91.1	10.5011 [10.0000]	105.0%			
PFUnA	(563.0 / 519.0) 2762959 (563.0 / 169.0) 281752	(9.71 , 1.00) (0.00 , N/A , 0.0)	678.3 368.4	0.1020 117.4 117.4	10.3620 [10.0000]	103.6%			
PFDoA	(613.0 / 569.0) 3158081 (613.0 / 169.0) 408270	(9.89 , 1.00) (0.00 , N/A , -0.3)	740.9 505.8	0.1293 92.9 92.9	10.5649 [10.0000]	105.6%			
PFTrDA	(663.0 / 619.0) 2750923 (663.0 / 169.0) 615527	(10.01 , 1.01) (N/A , -0.01 , -0.3)	922.1 622.7	0.2238 109.3 109.3	10.6219 [10.0000]	106.2%			
PFTeDA	(713.0 / 669.0) 2392662 (713.0 / 169.0) 396949	(10.12 , 1.00) (0.00 , N/A , 0.2)	784.4 530.3	0.1659 81.6 81.6	12.1566 [10.0000]	121.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (6)
Acquired: 2022/12/21 - 15:30

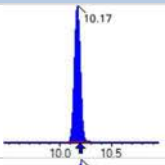
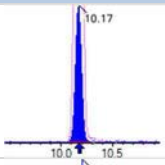
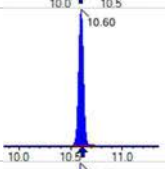
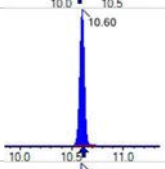
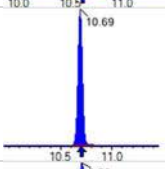
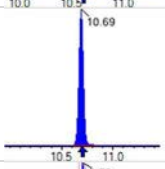
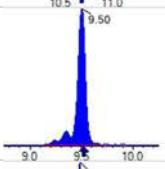
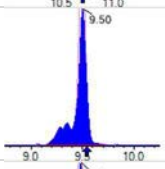
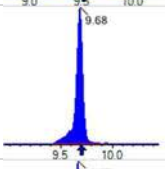
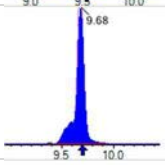
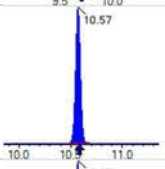
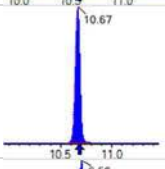
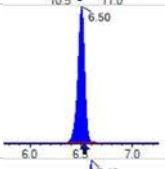
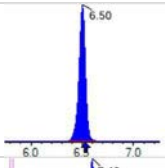
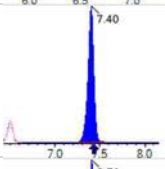
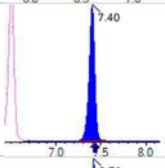
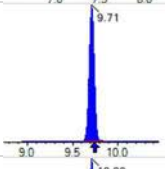
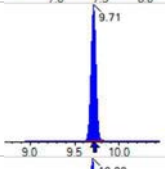
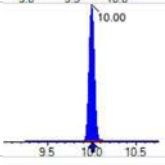
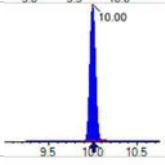
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 3499294 (298.9 / 99.0) 2162960	(6.11 , 1.00) (0.00 , N/A , 0.0)	782.7 712.1	0.6181 100.4 100.4	9.3608 [8.8473]	105.8%			
PFPeS	(349.0 / 80.0) 6311120 (349.0 / 99.0) 2220135	(7.15 , 0.89) (N/A , -0.03 , 0.0)	774.9 858.6	0.3518 98.8 98.8	9.3269 [9.3838]	99.4%			
PFHxS	(399.0 / 80.0) 5497046 (399.0 / 99.0) 1809522	(8.02 , 1.00) (0.00 , N/A , 0.2)	3843.8 4067.6	0.3292 97.9 97.9	9.3415 [9.1098]	102.5%			
PFHpS	(449.0 / 80.0) 4655282 (449.0 / 99.0) 1364079	(8.79 , 0.93) (N/A , -0.03 , 0.1)	660.3 545.6	0.2930 107.1 107.1	10.1795 [9.5141]	107.0%			
PFOS	(499.0 / 80.0) 5408135 (499.0 / 99.0) 1245798	(9.45 , 1.00) (0.00 , N/A , -0.1)	107.2 128.5	0.2304 94.7 94.7	9.5064 [9.2749]	102.5%			
PFNS	(549.0 / 80.0) 6857872 (549.0 / 99.0) 1607367	(9.76 , 1.03) (N/A , -0.01 , 0.1)	779.5 870.0	0.2344 96.0 96.0	10.8669 [9.5989]	113.2%			
PFDS	(599.0 / 80.0) 7907397 (599.0 / 99.0) 1810025	(9.91 , 1.05) (N/A , -0.01 , 0.2)	1173.5 1014.3	0.2289 101.7 101.7	11.2866 [9.6311]	117.2%			
PFDoS	(698.9 / 80.0) 2945783 (698.9 / 99.0) 628808	(10.11 , 1.07) (N/A , -0.01 , 0.1)	1059.1 1043.2	0.2135 87.2 87.2	10.0602 [9.6956]	103.8%			
4:2FTS	(327.0 / 307.0) 7219424 (327.0 / 81.0) 3962590	(5.83 , 1.00) (0.00 , N/A , 0.3)	742.8 891.9	0.5489 111.1 111.1	35.0389 [37.3811]	93.7%			
6:2FTS	(427.0 / 407.0) 4387404 (427.0 / 81.0) 2952550	(7.56 , 1.00) (0.00 , N/A , -0.1)	852.0 1014.4	0.6730 86.5 86.5	42.2664 [37.9617]	111.3%			
8:2FTS	(527.0 / 507.0) 4299071 (527.0 / 81.0) 2483349	(8.97 , 1.00) (0.00 , N/A , 0.1)	581.6 491.2	0.5776 102.1 102.1	39.3656 [38.3315]	102.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (6)
Acquired: 2022/12/21 - 15:30

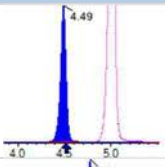
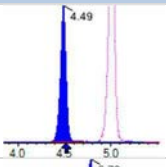
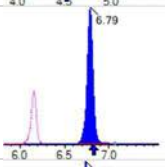
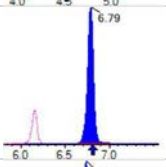
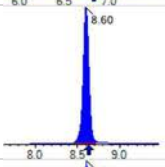
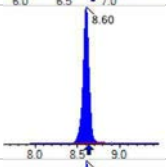
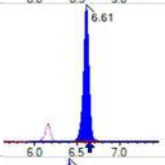
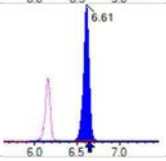
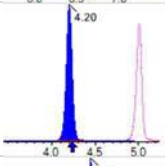
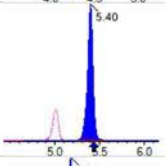
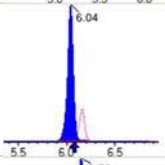
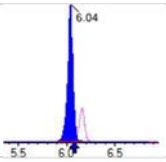
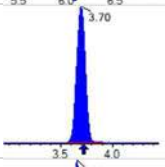
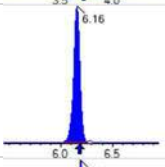
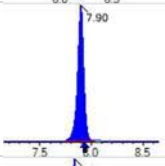
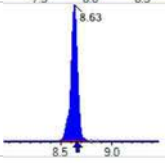
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 7323816 (498.0 / 478.0) 156082	(10.17 , 1.00) (0.00 , N/A , -0.1)	1220.2 517.0	0.0213 102.2 102.2	11.2339 [10.0000]	112.3%			
NMeFOSA	(511.9 / 219.0) 5018962 (511.9 / 169.0) 3409088	(10.60 , 1.00) (0.00 , N/A , -0.1)	1068.1 1194.8	0.6792 94.3 94.3	41.0228 [40.0000]	102.6%			
NEtFOSA	(526.0 / 219.0) 5202781 (526.0 / 169.0) 5559747	(10.69 , 1.00) (0.00 , N/A , 0.0)	1128.4 1454.6	1.0686 101.0 101.0	41.3031 [40.0000]	103.3%			
NMeFOSAA	(570.0 / 419.0) 1047253 (570.0 / 483.0) 528303	(9.50 , 1.00) (0.01 , N/A , 0.0)	505.4 486.7	0.5045 82.1 82.1	9.6770 [10.0000]	96.8%			
NEtFOSAA	(584.0 / 419.0) 1028405 (584.0 / 526.0) 603316	(9.68 , 1.00) (0.01 , N/A , 0.0)	933.5 1079.0	0.5867 80.0 80.0	8.7467 [10.0000]	87.5%			
NMeFOSE	(616.1 / 59.0) 1066666	(10.57 , 1.00) (0.01 , N/A , 0.0)	1245.3	N/A 0.0 0.0	43.1436 [40.0000]	107.9%			
NEtFOSE	(630.0 / 59.0) 190429	(10.67 , 1.00) (0.01 , N/A , 0.0)	952.6	N/A 0.0 0.0	39.7759 [40.0000]	99.4%			
HFPO-DA	(285.0 / 169.0) 1706844 (285.0 / 185.0) 4940740	(6.50 , 1.00) (0.00 , N/A , 0.0)	940.9 950.3	2.8947 105.5 105.5	19.4163 [20.0000]	97.1%			
ADONA	(377.0 / 85.0) 7625070 (377.0 / 251.0) 966765	(7.40 , 1.14) (N/A , -0.03 , 0.0)	848.9 734.0	0.1268 101.8 101.8	19.5285 [18.8540]	103.6%			
9Cl-Pf3ONS	(531.0 / 351.0) 18752532 (533.0 / 353.0) 6070274	(9.71 , 1.49) (N/A , -0.02 , 0.0)	653.0 661.6	0.3237 109.4 109.4	18.3510 [18.6651]	98.3%			
11Cl-PF3OUDS	(631.0 / 451.0) 10830263 (633.0 / 453.0) 3030278	(10.00 , 1.54) (N/A , -0.01 , 0.1)	1577.4 1022.7	0.2798 84.6 84.6	19.8453 [18.8642]	105.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (6)
Acquired: 2022/12/21 - 15:30

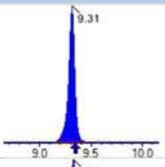
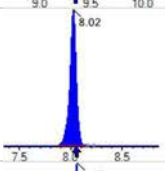
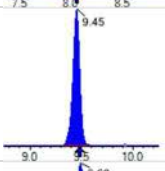
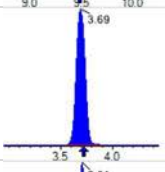
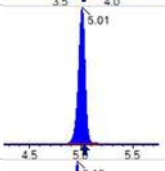
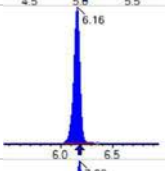
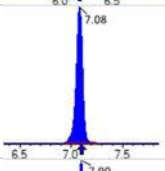
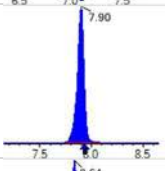
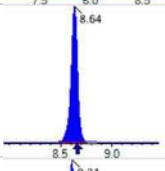
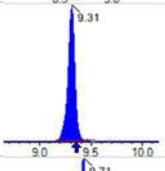
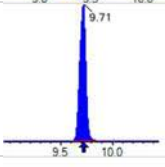
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 204327 (241.0 / 117.0) 336062	(4.49 , 0.90) (N/A , -0.03 , 0.1)	792.9 648.3	1.6447 98.3 98.3	41.6496 [40.0000]	104.1%			
5:3FTCA	(341.0 / 236.7) 1619148 (341.0 / 217.0) 2611063	(6.79 , 1.10) (N/A , -0.03 , -0.1)	703.3 612.1	1.6126 110.2 110.2	37.9872 [40.0000]	95.0%			
7:3FTCA	(441.0 / 317.0) 1906765 (441.0 / 337.0) 1608500	(8.60 , 1.40) (N/A , -0.03 , -0.1)	523.3 597.0	0.8436 100.7 100.7	38.8788 [40.0000]	97.2%			
PFEESA	(315.0 / 135.0) 4593030 (315.0 / 83.0) 1327802	(6.61 , 1.07) (N/A , -0.03 , -0.1)	844.1 795.4	0.2891 94.2 94.2	17.3915 [17.8492]	97.4%			
PFMPA	(229.0 / 85.0) 810629	(4.20 , 0.84) (N/A , -0.03 , 0.0)	1061.6	N/A 0.0 0.0	20.7783 [20.0000]	103.9%			
PFMBA	(279.0 / 85.0) 2665168	(5.40 , 1.08) (N/A , -0.03 , 0.0)	868.7	N/A 0.0 0.0	19.7641 [20.0000]	98.8%			
NFDHA	(295.0 / 201.0) 2388001 (295.0 / 85.0) 2094961	(6.04 , 0.98) (N/A , -0.03 , 0.0)	636.9 870.9	0.8773 99.4 99.4	19.6329 [20.0000]	98.2%			
13C3_PFBA_IIS	(216.0 / 172.0) 145548	(3.70 , N/A) (N/A , -0.02 , N/A)	760.7	N/A	1.0457 [1.0000]	104.6% { 95.9% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 251161	(6.16 , N/A) (N/A , -0.03 , N/A)	573.8	N/A	1.0877 [1.0000]	108.8% { 107.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 228422	(7.90 , N/A) (N/A , -0.03 , N/A)	604.8	N/A	1.0390 [1.0000]	103.9% { 96.0% }			
13C5_PFNA_IIS	(468.0 / 423.0) 199253	(8.63 , N/A) (N/A , -0.03 , N/A)	633.0	N/A	1.0760 [1.0000]	107.6% { 98.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

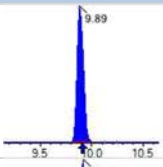
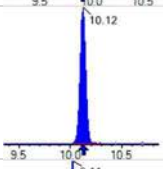
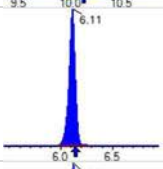
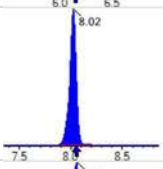
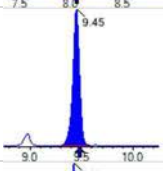
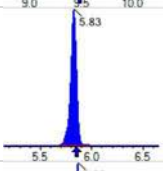
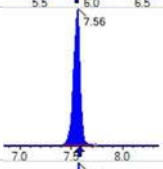
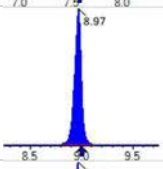
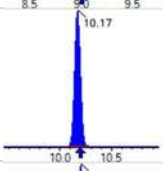
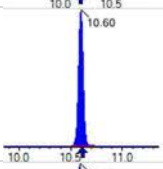
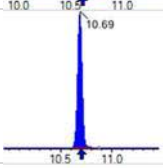
Sample I.D.: SB03941-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (6)
Acquired: 2022/12/21 - 15:30

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	(515.1 / 470.1) 224539	(9.31 , N/A) (N/A , -0.03 , N/A)	595.4	N/A	1.2150 [1.0000]	121.5% { 129.2% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 425062	(8.02 , N/A) (N/A , -0.03 , N/A)	758.0	N/A	1.0529 [1.0000]	105.3% { 100.6% }			
13C4_PFOS_IIS	(502.8 / 79.9) 327789	(9.45 , N/A) (N/A , -0.03 , N/A)	437.5	N/A	1.0270 [1.0000]	102.7% { 100.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1163869	(3.69 , N/A) (N/A , -0.02 , N/A)	943.4	N/A	7.7695 [8.0000]	97.1% { 97.8% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 647411	(5.01 , N/A) (N/A , -0.03 , N/A)	744.3	N/A	3.7047 [4.0000]	92.6% { 93.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 561752	(6.16 , N/A) (N/A , -0.03 , N/A)	573.9	N/A	1.9436 [2.0000]	97.2% { 104.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 476643	(7.08 , N/A) (N/A , -0.03 , N/A)	661.3	N/A	1.8904 [2.0000]	94.5% { 97.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 497619	(7.90 , N/A) (N/A , -0.03 , N/A)	689.7	N/A	1.9865 [2.0000]	99.3% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 223778	(8.64 , N/A) (N/A , -0.03 , N/A)	409.0	N/A	1.0213 [1.0000]	102.1% { 102.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 273272	(9.31 , N/A) (N/A , -0.03 , N/A)	311.9	N/A	0.8557 [1.0000]	85.6% { 97.1% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 337405	(9.71 , N/A) (N/A , -0.01 , N/A)	389.2	N/A	0.7428 [1.0000]	74.3% { 84.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: SB03941-CAL6 | Quant Method: 1633 - S2022-12-21A
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2022-12-21A (6)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2022-12-21.dam | Acquired: 2022/12/21 - 15:30

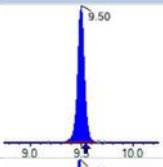
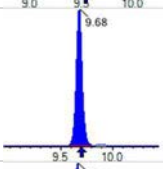
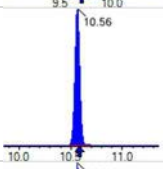
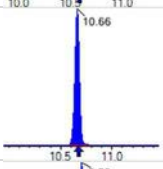
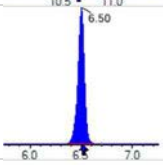
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 346746	(9.89 , N/A) (N/A , -0.02 , N/A)	642.1	N/A	0.7648 [1.0000]	76.5% { 89.4% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 222076	(10.12 , N/A) (N/A , -0.01 , N/A)	456.1	N/A	0.7376 [1.0000]	73.8% { 91.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1363704	(6.11 , N/A) (N/A , -0.03 , N/A)	654.6	N/A	1.8975 [2.0000]	94.9% { 99.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 757540	(8.02 , N/A) (N/A , -0.03 , N/A)	799.7	N/A	1.9811 [2.0000]	99.1% { 100.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1048231	(9.45 , N/A) (N/A , -0.03 , N/A)	180.4	N/A	1.8633 [2.0000]	93.2% { 88.1% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 249254	(5.83 , N/A) (N/A , -0.03 , N/A)	640.7	N/A	4.0948 [4.0000]	102.4% { 111.2% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 270052	(7.56 , N/A) (N/A , -0.03 , N/A)	709.3	N/A	3.6849 [4.0000]	92.1% { 98.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 275725	(8.97 , N/A) (N/A , -0.03 , N/A)	445.9	N/A	3.7584 [4.0000]	94.0% { 93.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1379635	(10.17 , N/A) (N/A , -0.01 , N/A)	959.9	N/A	1.9401 [2.0000]	97.0% { 94.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 300177	(10.60 , N/A) (N/A , -0.01 , N/A)	888.1	N/A	1.9334 [2.0000]	96.7% { 91.0% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 279297	(10.69 , N/A) (N/A , -0.01 , N/A)	926.2	N/A	1.9487 [2.0000]	97.4% { 98.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL6
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (6)
Acquired: 2022/12/21 - 15:30

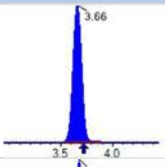
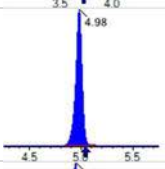
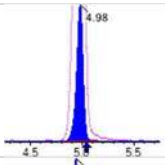
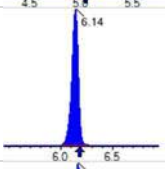
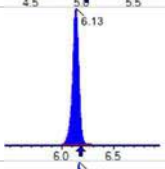
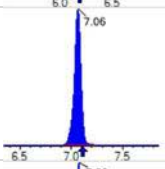
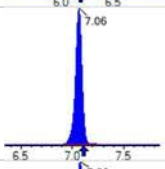
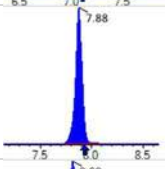
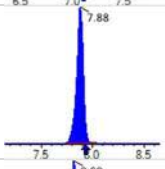
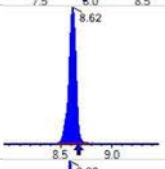
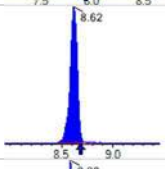
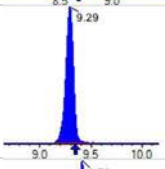
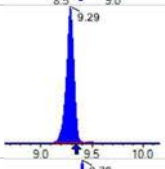
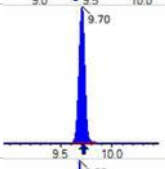
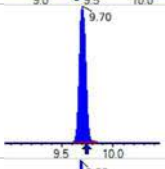
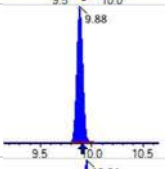
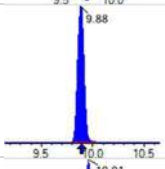
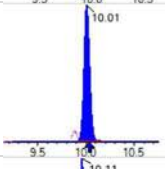
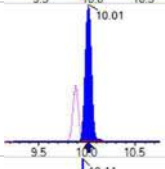
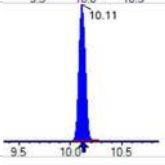
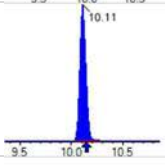
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 555492	(9.50 , N/A) (N/A , -0.03 , N/A)	414.0	N/A	4.1525 [4.0000]	103.8% { 108.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 523855	(9.68 , N/A) (N/A , -0.02 , N/A)	484.6	N/A	4.4428 [4.0000]	111.1% { 111.1% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 391753	(10.56 , N/A) (N/A , -0.01 , N/A)	1314.7	N/A	17.9697 [20.0000]	89.8% { 90.8% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 187004	(10.66 , N/A) (N/A , -0.01 , N/A)	901.5	N/A	18.8420 [20.0000]	94.2% { 102.5% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1157042	(6.50 , N/A) (N/A , -0.03 , N/A)	770.4	N/A	7.5294 [8.0000]	94.1% { 98.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (7)
Acquired: 2022/12/21 - 15:42

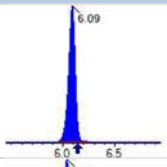
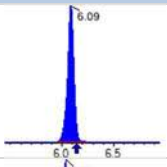
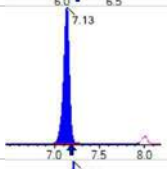
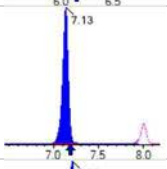
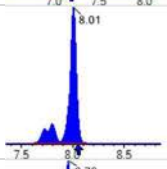
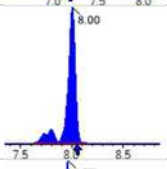
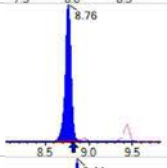
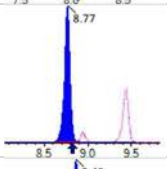
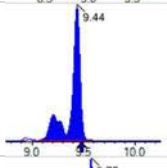
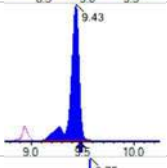
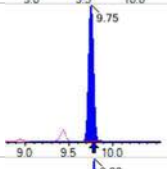
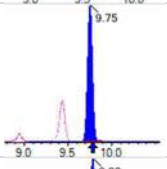
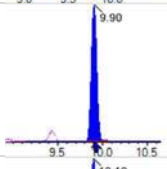
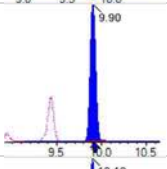
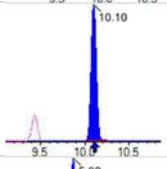
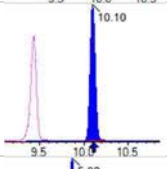
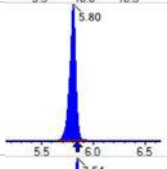
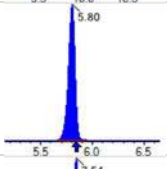
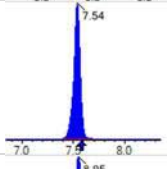
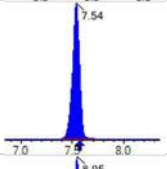
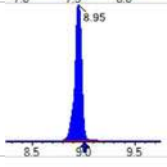
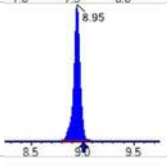
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 7729586	(3.66 , 1.00) (0.00 , N/A , 0.0)	67.9	N/A 0.0 0.0	81.7379 [80.0000]	102.2%			
PFPeA	(262.9 / 219.0) 5643399 (262.9 / 69.0) 60722	(4.98 , 1.00) (0.00 , N/A , 0.0)	694.2 520.3	0.0108 96.1 96.1	40.6136 [40.0000]	101.5%			
PFHxA	(313.0 / 269.0) 4661260 (313.0 / 119.0) 458438	(6.14 , 1.00) (0.00 , N/A , 0.3)	740.9 630.9	0.0984 100.6 100.6	21.3969 [20.0000]	107.0%			
PFHpA	(363.0 / 319.0) 4440128 (363.0 / 169.0) 1284143	(7.06 , 1.00) (0.00 , N/A , 0.0)	668.8 659.4	0.2892 92.9 92.9	21.0935 [20.0000]	105.5%			
PFOA	(413.0 / 369.0) 4641747 (413.0 / 169.0) 1487003	(7.88 , 1.00) (0.00 , N/A , -0.3)	945.5 720.9	0.3204 98.0 98.0	20.0481 [20.0000]	100.2%			
PFNA	(463.0 / 419.0) 3537219 (463.0 / 169.0) 723244	(8.62 , 1.00) (0.00 , N/A , -0.2)	600.2 105.2	0.2045 106.1 106.1	20.0197 [20.0000]	100.1%			
PFDA	(513.0 / 469.0) 4550414 (513.0 / 169.0) 407049	(9.29 , 1.00) (0.00 , N/A , 0.3)	458.4 340.9	0.0895 93.6 93.6	18.7496 [20.0000]	93.7%			
PFUnA	(563.0 / 519.0) 5474685 (563.0 / 169.0) 489769	(9.70 , 1.00) (0.00 , N/A , 0.3)	796.9 670.2	0.0895 103.0 103.0	20.8759 [20.0000]	104.4%			
PFDoA	(613.0 / 569.0) 6253442 (613.0 / 169.0) 780811	(9.88 , 1.00) (0.00 , N/A , 0.0)	838.3 526.7	0.1249 89.7 89.7	19.2908 [20.0000]	96.5%			
PFTrDA	(663.0 / 619.0) 5585067 (663.0 / 169.0) 1021977	(10.01 , 1.01) (N/A , -0.02 , -0.4)	939.9 794.3	0.1830 89.4 89.4	19.8858 [20.0000]	99.4%			
PFTeDA	(713.0 / 669.0) 4569846 (713.0 / 169.0) 904045	(10.11 , 1.00) (0.00 , N/A , 0.2)	734.0 687.4	0.1978 97.3 97.3	17.5178 [20.0000]	87.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (7)
Acquired: 2022/12/21 - 15:42

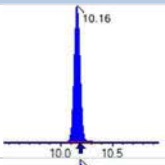
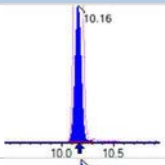
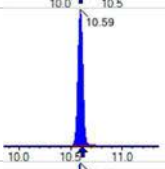
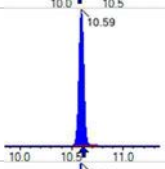
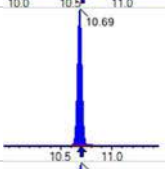
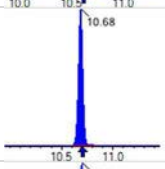
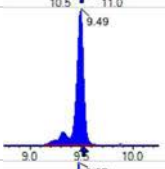
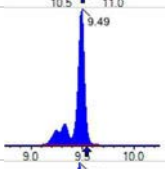
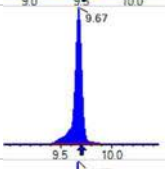
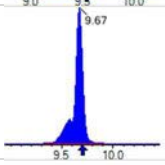
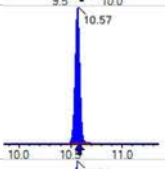
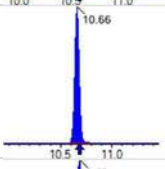
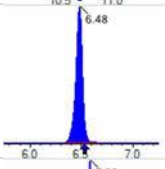
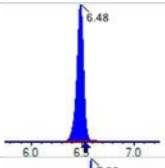
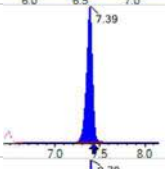
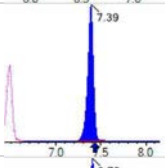
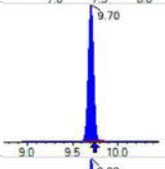
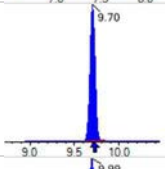
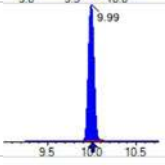
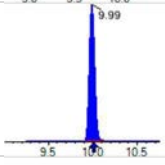
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 6221305 (298.9 / 99.0) 4130206	(6.09 , 1.00) (0.00 , N/A , 0.1)	735.2 716.1	0.6639 107.9 107.9	17.4196 [17.6947]	98.4%			
PFPeS	(349.0 / 80.0) 12435170 (349.0 / 99.0) 4513587	(7.13 , 0.89) (N/A , -0.05 , 0.0)	731.5 788.8	0.3630 102.0 102.0	19.6427 [18.7676]	104.7%			
PFHxS	(399.0 / 80.0) 10414987 (399.0 / 99.0) 3525485	(8.01 , 1.00) (0.00 , N/A , 0.2)	3224.1 4892.8	0.3385 100.7 100.7	18.9174 [18.2197]	103.8%			
PFHpS	(449.0 / 80.0) 9724229 (449.0 / 99.0) 2826299	(8.76 , 0.93) (N/A , -0.05 , -0.1)	693.4 620.9	0.2906 106.2 106.2	19.4303 [19.0281]	102.1%			
PFOS	(499.0 / 80.0) 11033465 (499.0 / 99.0) 2411819	(9.44 , 1.00) (0.00 , N/A , 0.2)	102.1 160.8	0.2186 89.9 89.9	17.7225 [18.5499]	95.5%			
PFNS	(549.0 / 80.0) 12066925 (549.0 / 99.0) 3200250	(9.75 , 1.03) (N/A , -0.02 , 0.0)	748.7 678.2	0.2652 108.7 108.7	17.4726 [19.1977]	91.0%			
PFDS	(599.0 / 80.0) 13381834 (599.0 / 99.0) 3299330	(9.90 , 1.05) (N/A , -0.02 , 0.1)	1052.2 1451.8	0.2466 109.5 109.5	17.4537 [19.2621]	90.6%			
PFDoS	(698.9 / 80.0) 5470070 (698.9 / 99.0) 1315874	(10.10 , 1.07) (N/A , -0.02 , 0.0)	1218.8 960.3	0.2406 98.3 98.3	17.0703 [19.3913]	88.0%			
4:2FTS	(327.0 / 307.0) 13496630 (327.0 / 81.0) 7417812	(5.80 , 1.00) (0.00 , N/A , 0.1)	849.9 833.0	0.5496 111.3 111.3	72.4566 [74.7622]	96.9%			
6:2FTS	(427.0 / 407.0) 8307126 (427.0 / 81.0) 5171329	(7.54 , 1.00) (0.00 , N/A , 0.0)	820.9 695.6	0.6225 80.0 80.0	76.1349 [75.9234]	100.3%			
8:2FTS	(527.0 / 507.0) 8258969 (527.0 / 81.0) 4745404	(8.95 , 1.00) (0.00 , N/A , 0.3)	609.9 658.7	0.5746 101.5 101.5	75.3496 [76.6631]	98.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (7)
Acquired: 2022/12/21 - 15:42

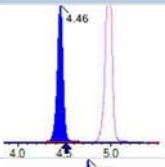
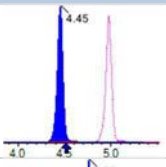
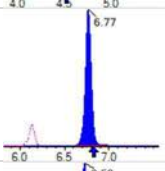
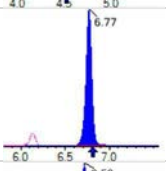
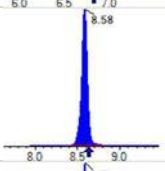
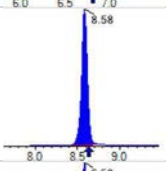
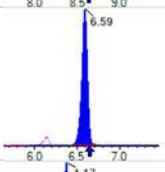
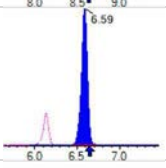
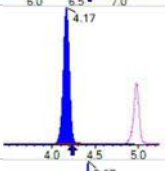
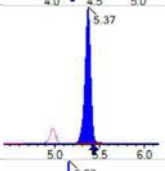
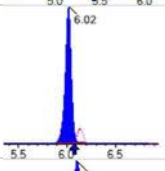
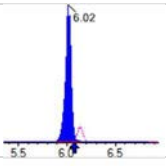
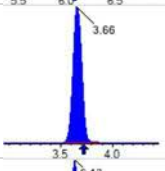
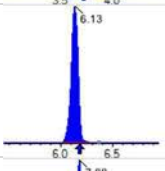
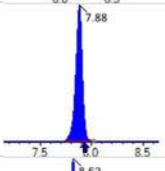
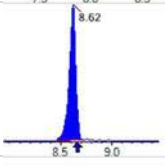
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 12934205 (498.0 / 478.0) 273418	(10.16 , 1.00) (0.00 , N/A , 0.0)	1019.0 675.2	0.0211 101.4 101.4	18.9126 [20.0000]	94.6%			
NMeFOSA	(511.9 / 219.0) 10047403 (511.9 / 169.0) 6239729	(10.59 , 1.00) (0.00 , N/A , 0.0)	963.4 963.6	0.6210 86.2 86.2	79.4328 [80.0000]	99.3%			
NEtFOSA	(526.0 / 219.0) 10330116 (526.0 / 169.0) 10487941	(10.69 , 1.00) (0.00 , N/A , 0.0)	1549.4 1526.7	1.0153 96.0 96.0	82.6028 [80.0000]	103.3%			
NMeFOSAA	(570.0 / 419.0) 2160138 (570.0 / 483.0) 1120189	(9.49 , 1.00) (0.01 , N/A , 0.0)	519.4 506.9	0.5186 84.4 84.4	21.0347 [20.0000]	105.2%			
NEtFOSAA	(584.0 / 419.0) 1755294 (584.0 / 526.0) 1179499	(9.67 , 1.00) (0.01 , N/A , 0.2)	1046.0 2541.1	0.6720 91.6 91.6	19.8369 [20.0000]	99.2%			
NMeFOSE	(616.1 / 59.0) 2100981	(10.57 , 1.00) (0.01 , N/A , 0.0)	1163.7	N/A 0.0 0.0	87.8464 [80.0000]	109.8%			
NEtFOSE	(630.0 / 59.0) 379057	(10.66 , 1.00) (0.01 , N/A , 0.0)	1328.5	N/A 0.0 0.0	79.1545 [80.0000]	98.9%			
HFPO-DA	(285.0 / 169.0) 3403206 (285.0 / 185.0) 9550202	(6.48 , 1.00) (0.00 , N/A , 0.0)	822.2 932.2	2.8062 102.2 102.2	39.8571 [40.0000]	99.6%			
ADONA	(377.0 / 85.0) 14175645 (377.0 / 251.0) 1888186	(7.39 , 1.14) (N/A , -0.04 , -0.1)	782.5 715.9	0.1332 107.0 107.0	37.3778 [37.7080]	99.1%			
9Cl-Pf3ONS	(531.0 / 351.0) 33927453 (533.0 / 353.0) 11818760	(9.70 , 1.50) (N/A , -0.03 , 0.1)	767.5 701.4	0.3484 117.7 117.7	37.0127 [37.3302]	99.1%			
11Cl-PF3OUDS	(631.0 / 451.0) 18459375 (633.0 / 453.0) 6096113	(9.99 , 1.54) (N/A , -0.02 , 0.1)	875.1 1257.4	0.3302 99.8 99.8	34.8243 [37.7283]	92.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (7)
Acquired: 2022/12/21 - 15:42

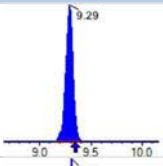
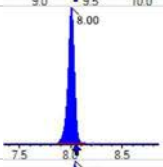
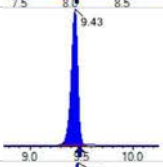
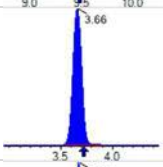
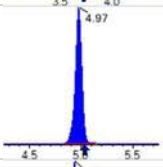
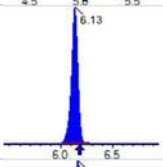
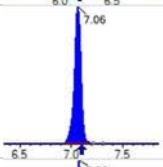
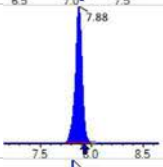
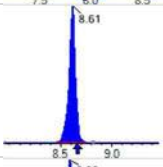
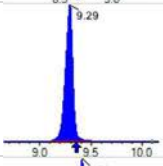
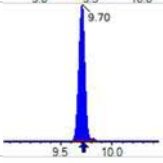
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 413530 (241.0 / 117.0) 684831	(4.46 , 0.90) (N/A , -0.06 , 0.0)	763.7 842.4	1.6561 99.0 99.0	86.2307 [80.0000]	107.8%			
5:3FTCA	(341.0 / 236.7) 3356741 (341.0 / 217.0) 5218130	(6.77 , 1.10) (N/A , -0.05 , -0.2)	736.7 741.6	1.5545 106.2 106.2	87.2034 [80.0000]	109.0%			
7:3FTCA	(441.0 / 317.0) 3849941 (441.0 / 337.0) 3225448	(8.58 , 1.40) (N/A , -0.05 , 0.0)	479.5 551.2	0.8378 100.0 100.0	86.9230 [80.0000]	108.7%			
PFEESA	(315.0 / 135.0) 8973610 (315.0 / 83.0) 2426863	(6.59 , 1.07) (N/A , -0.05 , 0.2)	892.6 762.9	0.2704 88.1 88.1	37.6244 [35.6984]	105.4%			
PFMPA	(229.0 / 85.0) 1587857	(4.17 , 0.84) (N/A , -0.06 , 0.0)	1007.1	N/A 0.0 0.0	41.6361 [40.0000]	104.1%			
PFMBA	(279.0 / 85.0) 5452093	(5.37 , 1.08) (N/A , -0.06 , 0.0)	936.0	N/A 0.0 0.0	41.3605 [40.0000]	103.4%			
NFDHA	(295.0 / 201.0) 4564595 (295.0 / 85.0) 4173432	(6.02 , 0.98) (N/A , -0.05 , -0.1)	742.5 3610.4	0.9143 103.6 103.6	41.5544 [40.0000]	103.9%			
13C3_PFBA_IIS	(216.0 / 172.0) 143451	(3.66 , N/A) (N/A , -0.06 , N/A)	719.9	N/A	1.0306 [1.0000]	103.1% { 94.5% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 248043	(6.13 , N/A) (N/A , -0.05 , N/A)	661.9	N/A	1.0742 [1.0000]	107.4% { 106.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 234938	(7.88 , N/A) (N/A , -0.05 , N/A)	713.0	N/A	1.0686 [1.0000]	106.9% { 98.7% }			
13C5_PFNA_IIS	(468.0 / 423.0) 193387	(8.62 , N/A) (N/A , -0.05 , N/A)	335.2	N/A	1.0443 [1.0000]	104.4% { 95.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (7)
Acquired: 2022/12/21 - 15:42

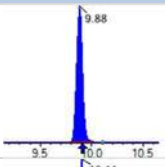
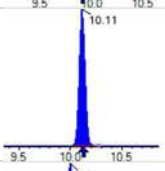
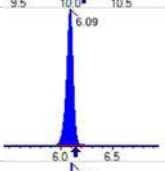
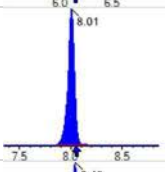
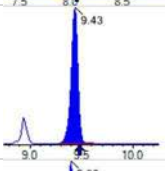
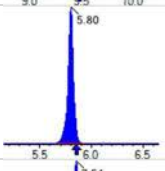
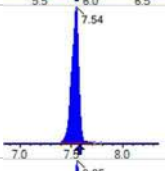
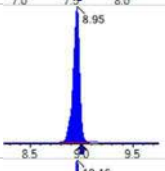
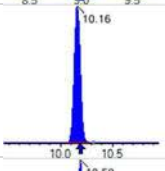
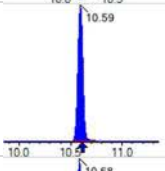
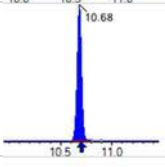
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 186408	(9.29 , N/A) (N/A , -0.05 , N/A)	664.1	N/A	1.0087 [1.0000]	100.9% { 107.2% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 428893	(8.00 , N/A) (N/A , -0.05 , N/A)	824.8	N/A	1.0624 [1.0000]	106.2% { 101.5% }			
13C4_PFOS_IIS	(502.8 / 79.9) 333901	(9.43 , N/A) (N/A , -0.05 , N/A)	344.0	N/A	1.0461 [1.0000]	104.6% { 101.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1159624	(3.66 , N/A) (N/A , -0.06 , N/A)	908.2	N/A	7.8543 [8.0000]	98.2% { 97.4% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 632863	(4.97 , N/A) (N/A , -0.06 , N/A)	720.4	N/A	3.6669 [4.0000]	91.7% { 90.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 507317	(6.13 , N/A) (N/A , -0.05 , N/A)	683.8	N/A	1.7773 [2.0000]	88.9% { 94.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 461855	(7.06 , N/A) (N/A , -0.04 , N/A)	556.4	N/A	1.8548 [2.0000]	92.7% { 94.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 470888	(7.88 , N/A) (N/A , -0.05 , N/A)	672.4	N/A	1.8276 [2.0000]	91.4% { 94.6% }			
13C9_PFNA_EIS	(472.0 / 427.0) 205912	(8.61 , N/A) (N/A , -0.05 , N/A)	479.7	N/A	0.9683 [1.0000]	96.8% { 94.1% }			
13C6_PFDA_EIS	(519.0 / 474.0) 254972	(9.29 , N/A) (N/A , -0.06 , N/A)	408.6	N/A	0.9617 [1.0000]	96.2% { 90.6% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 331844	(9.70 , N/A) (N/A , -0.02 , N/A)	703.9	N/A	0.8800 [1.0000]	88.0% { 83.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (7)
Acquired: 2022/12/21 - 15:42

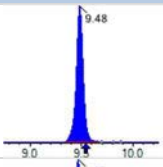
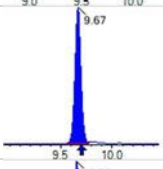
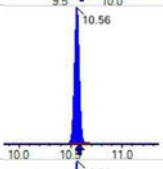
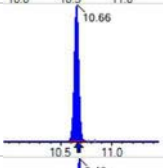
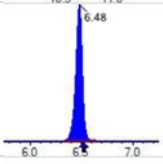
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 376028	(9.88 , N/A) (N/A , -0.02 , N/A)	523.5	N/A	0.9990 [1.0000]	99.9% { 97.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 294342	(10.11 , N/A) (N/A , -0.02 , N/A)	600.7	N/A	1.1775 [1.0000]	117.8% { 121.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1302850	(6.09 , N/A) (N/A , -0.05 , N/A)	735.8	N/A	1.7967 [2.0000]	89.8% { 94.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 708742	(8.01 , N/A) (N/A , -0.05 , N/A)	751.5	N/A	1.8369 [2.0000]	91.8% { 94.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1147133	(9.43 , N/A) (N/A , -0.05 , N/A)	153.7	N/A	2.0018 [2.0000]	100.1% { 96.4% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 225340	(5.80 , N/A) (N/A , -0.05 , N/A)	720.4	N/A	3.6689 [4.0000]	91.7% { 100.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 283858	(7.54 , N/A) (N/A , -0.04 , N/A)	652.9	N/A	3.8387 [4.0000]	96.0% { 103.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 276735	(8.95 , N/A) (N/A , -0.05 , N/A)	514.2	N/A	3.7385 [4.0000]	93.5% { 93.5% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1447254	(10.16 , N/A) (N/A , -0.02 , N/A)	722.4	N/A	1.9979 [2.0000]	99.9% { 98.8% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 310344	(10.59 , N/A) (N/A , -0.01 , N/A)	1001.9	N/A	1.9623 [2.0000]	98.1% { 94.0% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 277284	(10.68 , N/A) (N/A , -0.01 , N/A)	799.4	N/A	1.8992 [2.0000]	95.0% { 97.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL7
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (7)
Acquired: 2022/12/21 - 15:42

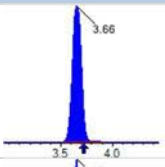
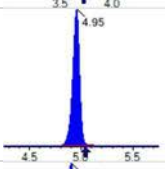
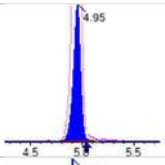
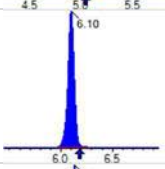
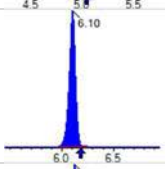
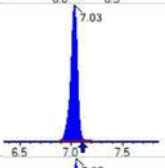
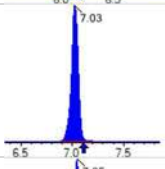
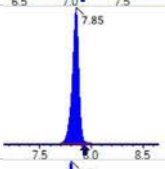
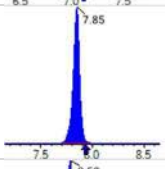
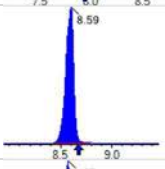
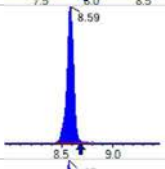
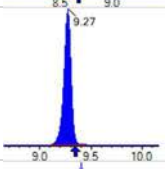
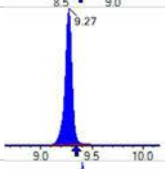
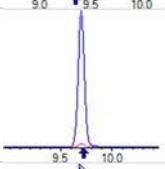
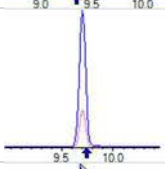
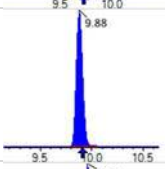
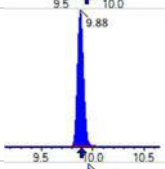
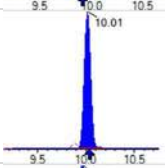
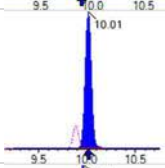
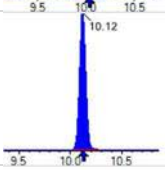
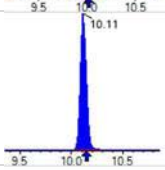
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 527124	(9.48 , N/A) (N/A , -0.05 , N/A)	391.6	N/A	3.8683 [4.0000]	96.7% { 103.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 394245	(9.67 , N/A) (N/A , -0.03 , N/A)	343.6	N/A	3.2824 [4.0000]	82.1% { 83.6% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 378964	(10.56 , N/A) (N/A , -0.02 , N/A)	878.6	N/A	17.0648 [20.0000]	85.3% { 87.8% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 187054	(10.66 , N/A) (N/A , -0.02 , N/A)	1005.6	N/A	18.5020 [20.0000]	92.5% { 102.5% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1123837	(6.48 , N/A) (N/A , -0.05 , N/A)	699.6	N/A	7.4053 [8.0000]	92.6% { 95.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (8)
Acquired: 2022/12/21 - 15:55

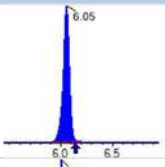
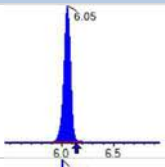
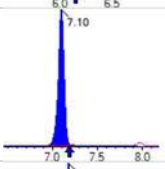
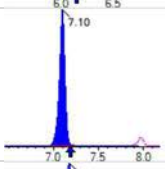
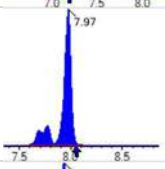
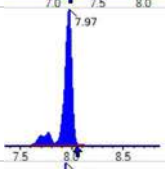
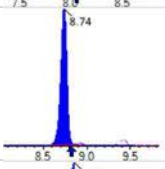
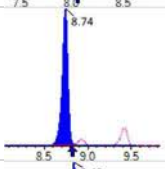
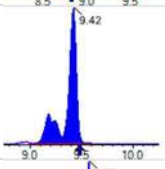
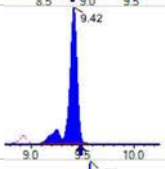
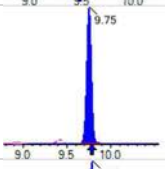
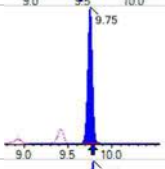
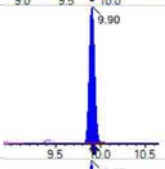
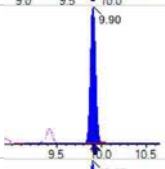
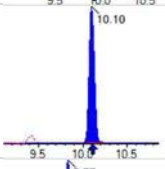
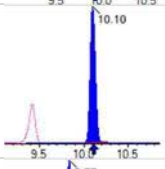
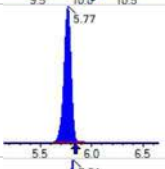
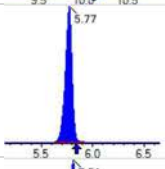
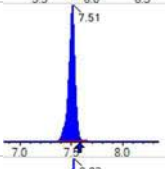
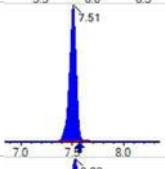
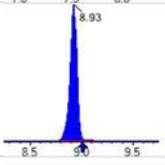
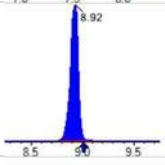
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 15778457	(3.66 , 1.00) (0.00 , N/A , 0.0)	61.8	N/A 0.0 0.0	201.2526 [200.0000]	100.6%			
PFPeA	(262.9 / 219.0) 12133479 (262.9 / 69.0) 132475	(4.95 , 1.00) (0.00 , N/A , 0.1)	828.8 567.2	0.0109 97.5 97.5	97.3969 [100.0000]	97.4%			
PFHxA	(313.0 / 269.0) 10205443 (313.0 / 119.0) 948352	(6.10 , 1.00) (0.00 , N/A , -0.2)	779.4 798.1	0.0929 95.0 95.0	48.9028 [50.0000]	97.8%			
PFHpA	(363.0 / 319.0) 9310576 (363.0 / 169.0) 2680356	(7.03 , 1.00) (0.00 , N/A , 0.2)	724.8 594.8	0.2879 92.4 92.4	47.8422 [50.0000]	95.7%			
PFOA	(413.0 / 369.0) 10880930 (413.0 / 169.0) 3245631	(7.85 , 1.00) (0.00 , N/A , 0.1)	767.4 928.5	0.2983 91.3 91.3	47.1047 [50.0000]	94.2%			
PFNA	(463.0 / 419.0) 7522680 (463.0 / 169.0) 1650478	(8.59 , 1.00) (0.00 , N/A , 0.3)	453.6 145.2	0.2194 113.8 113.8	44.6746 [50.0000]	89.3%			
PFDA	(513.0 / 469.0) 10901269 (513.0 / 169.0) 1054782	(9.27 , 1.00) (0.00 , N/A , 0.0)	475.9 419.2	0.0968 101.2 101.2	47.0411 [50.0000]	94.1%			
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 [50.0000]	N/A%			QC,
PFDoA	(613.0 / 569.0) 13234710 (613.0 / 169.0) 1677806	(9.88 , 1.00) (0.00 , N/A , 0.0)	801.8 797.3	0.1268 91.1 91.1	43.9737 [50.0000]	87.9%			
PFTrDA	(663.0 / 619.0) 10582859 (663.0 / 169.0) 2206188	(10.01 , 1.01) (N/A , -0.01 , 0.1)	667.9 1097.1	0.2085 101.9 101.9	40.5849 [50.0000]	81.2%			
PFTeDA	(713.0 / 669.0) 7805760 (713.0 / 169.0) 1615620	(10.12 , 1.00) (0.00 , N/A , 0.2)	709.6 922.1	0.2070 101.8 101.8	43.8879 [50.0000]	87.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (8)
Acquired: 2022/12/21 - 15:55

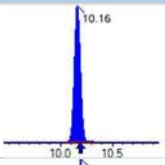
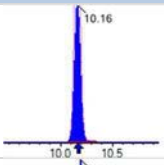
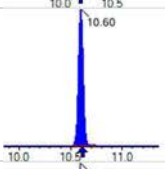
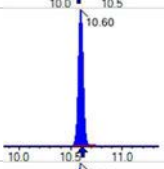
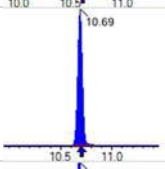
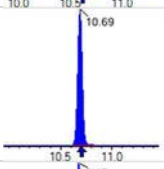
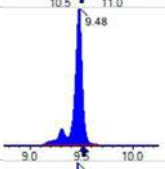
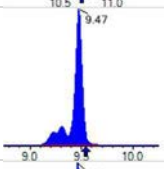
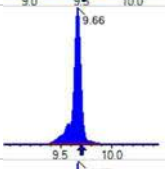
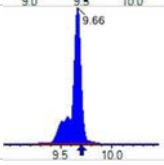
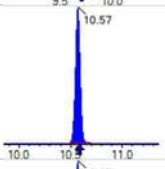
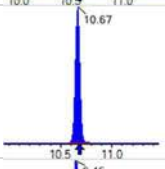
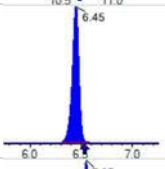
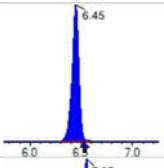
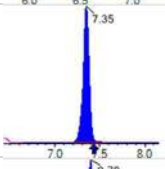
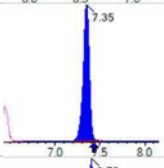
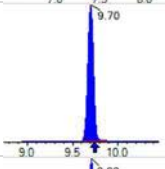
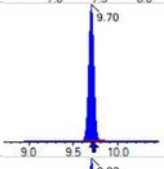
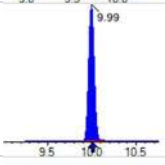
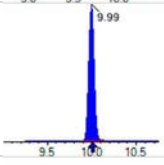
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 14320384 (298.9 / 99.0) 9157257	(6.05 , 1.00) (0.00 , N/A , 0.0)	609.6 755.2	0.6395 103.9 103.9	41.9991 [44.2367]	94.9%			
PFPeS	(349.0 / 80.0) 27380308 (349.0 / 99.0) 10684632	(7.10 , 0.89) (N/A , -0.08 , 0.0)	716.4 803.4	0.3902 109.6 109.6	43.5556 [46.9191]	92.8%			
PFHxS	(399.0 / 80.0) 23822711 (399.0 / 99.0) 8501412	(7.97 , 1.00) (0.00 , N/A , 0.2)	3206.8 4858.3	0.3569 106.2 106.2	43.5764 [45.5491]	95.7%			
PFHpS	(449.0 / 80.0) 21526516 (449.0 / 99.0) 6225213	(8.74 , 0.93) (N/A , -0.08 , -0.2)	807.9 582.9	0.2892 105.7 105.7	53.6267 [47.5703]	112.7%			
PFOS	(499.0 / 80.0) 23361916 (499.0 / 99.0) 5350161	(9.42 , 1.00) (0.00 , N/A , 0.2)	90.6 158.6	0.2290 94.2 94.2	46.7847 [46.3746]	100.9%			
PFNS	(549.0 / 80.0) 25746195 (549.0 / 99.0) 6429920	(9.75 , 1.04) (N/A , -0.02 , -0.1)	637.6 712.8	0.2497 102.3 102.3	46.4790 [47.9943]	96.8%			
PFDS	(599.0 / 80.0) 29991360 (599.0 / 99.0) 7324275	(9.90 , 1.05) (N/A , -0.02 , 0.0)	1114.1 872.9	0.2442 108.5 108.5	48.7700 [48.1553]	101.3%			
PFDoS	(698.9 / 80.0) 13570418 (698.9 / 99.0) 2668933	(10.10 , 1.07) (N/A , -0.02 , 0.0)	1153.0 1114.8	0.1967 80.4 80.4	52.7987 [48.4781]	108.9%			
4:2FTS	(327.0 / 307.0) 28030184 (327.0 / 81.0) 16838889	(5.77 , 1.00) (0.00 , N/A , -0.1)	791.1 776.4	0.6007 121.6 121.6	162.6637 [186.9055]	87.0%			
6:2FTS	(427.0 / 407.0) 17601598 (427.0 / 81.0) 12202144	(7.51 , 1.00) (0.01 , N/A , 0.1)	1049.9 926.0	0.6932 89.1 89.1	159.3520 [189.8085]	84.0%			
8:2FTS	(527.0 / 507.0) 17933024 (527.0 / 81.0) 10716573	(8.93 , 1.00) (0.00 , N/A , 0.1)	442.8 462.7	0.5976 105.6 105.6	159.3327 [191.6577]	83.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (8)
Acquired: 2022/12/21 - 15:55

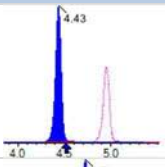
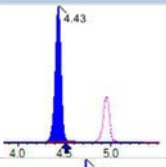
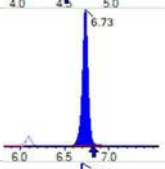
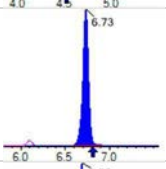
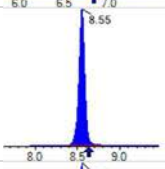
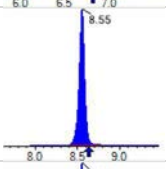
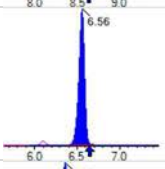
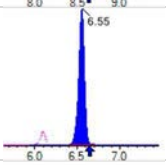
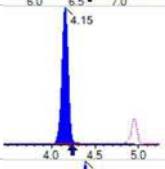
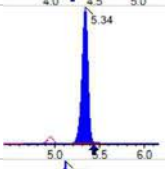
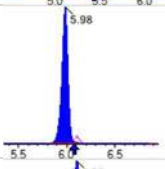
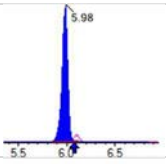
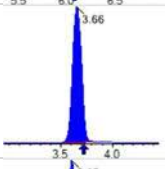
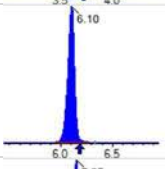
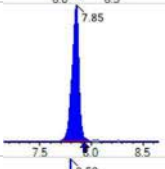
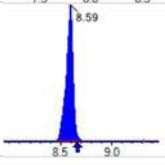
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 26488352 (498.0 / 478.0) 712333	(10.16 , 1.00) (0.00 , N/A , 0.0)	898.9 465.3	0.0269 129.0 129.0	44.9093 [50.0000]	89.8%			
NMeFOSA	(511.9 / 219.0) 20550926 (511.9 / 169.0) 14258423	(10.60 , 1.00) (0.00 , N/A , 0.0)	1415.7 1392.1	0.6938 96.3 96.3	154.7837 [200.0000]	77.4%			
NEtFOSA	(526.0 / 219.0) 20990611 (526.0 / 169.0) 22220555	(10.69 , 1.00) (0.00 , N/A , 0.0)	1261.8 1236.0	1.0586 100.1 100.1	180.9576 [200.0000]	90.5%			
NMeFOSAA	(570.0 / 419.0) 4624057 (570.0 / 483.0) 2546681	(9.48 , 1.00) (0.00 , N/A , 0.1)	612.4 699.2	0.5507 89.6 89.6	52.0507 [50.0000]	104.1%			
NEtFOSAA	(584.0 / 419.0) 3449541 (584.0 / 526.0) 2257461	(9.66 , 1.00) (0.01 , N/A , 0.1)	2584.8 1657.6	0.6544 89.3 89.3	44.6984 [50.0000]	89.4%			
NMeFOSE	(616.1 / 59.0) 4659899	(10.57 , 1.00) (0.01 , N/A , 0.0)	1409.7	N/A 0.0 0.0	193.2279 [200.0000]	96.6%			
NEtFOSE	(630.0 / 59.0) 761135	(10.67 , 1.00) (0.01 , N/A , 0.0)	1449.6	N/A 0.0 0.0	176.5757 [200.0000]	88.3%			
HFPO-DA	(285.0 / 169.0) 7283624 (285.0 / 185.0) 21015218	(6.45 , 1.00) (0.00 , N/A , 0.0)	819.6 766.3	2.8853 105.1 105.1	92.2819 [100.0000]	92.3%			
ADONA	(377.0 / 85.0) 30997851 (377.0 / 251.0) 4228517	(7.35 , 1.14) (N/A , -0.08 , -0.1)	720.3 754.4	0.1364 109.5 109.5	88.4207 [94.2700]	93.8%			
9Cl-Pf3ONS	(531.0 / 351.0) 59541631 (533.0 / 353.0) 22562888	(9.70 , 1.51) (N/A , -0.03 , 0.0)	623.2 593.5	0.3789 128.0 128.0	93.8486 [93.3254]	100.6%			
11Cl-PF3OUDS	(631.0 / 451.0) 37565149 (633.0 / 453.0) 12408034	(9.99 , 1.55) (N/A , -0.02 , 0.0)	851.2 754.0	0.3303 99.8 99.8	76.6659 [94.3208]	81.3%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (8)
Acquired: 2022/12/21 - 15:55

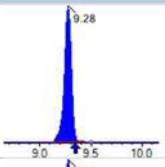
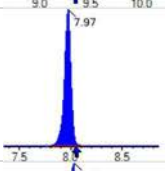
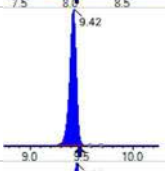
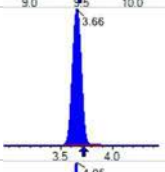
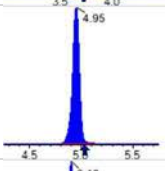
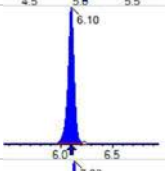
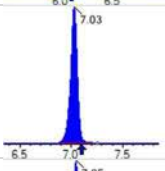
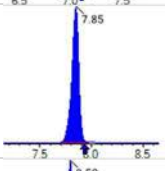
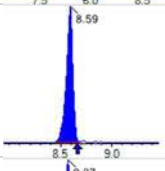
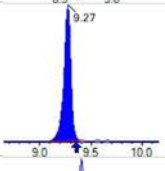
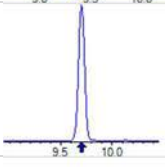
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 940591 (241.0 / 117.0) 1590971	(4.43 , 0.90) (N/A , -0.08 , 0.1)	760.7 709.5	1.6915 101.1 101.1	218.7688 [200.0000]	109.4%			
5:3FTCA	(341.0 / 236.7) 7717092 (341.0 / 217.0) 13002088	(6.73 , 1.10) (N/A , -0.09 , 0.0)	773.6 732.5	1.6848 115.1 115.1	209.2781 [200.0000]	104.6%			
7:3FTCA	(441.0 / 317.0) 8714946 (441.0 / 337.0) 7497720	(8.55 , 1.40) (N/A , -0.08 , -0.1)	569.5 568.2	0.8603 102.7 102.7	205.3998 [200.0000]	102.7%			
PFEESA	(315.0 / 135.0) 18885479 (315.0 / 83.0) 5523428	(6.56 , 1.07) (N/A , -0.08 , 0.1)	779.0 865.9	0.2925 95.3 95.3	82.6581 [89.2459]	92.6%			
PFMPA	(229.0 / 85.0) 3283850	(4.15 , 0.84) (N/A , -0.07 , 0.0)	1205.9	N/A 0.0 0.0	96.0441 [100.0000]	96.0%			
PFMBA	(279.0 / 85.0) 11632442	(5.34 , 1.08) (N/A , -0.09 , 0.0)	841.8	N/A 0.0 0.0	98.4289 [100.0000]	98.4%			
NFDHA	(295.0 / 201.0) 10199642 (295.0 / 85.0) 9290082	(5.98 , 0.98) (N/A , -0.09 , 0.0)	742.8 3901.2	0.9108 103.2 103.2	96.9290 [100.0000]	96.9%			
13C3_PFBA_IIS	(216.0 / 172.0) 117318	(3.66 , N/A) (N/A , -0.06 , N/A)	626.3	N/A	0.8428 [1.0000]	84.3% { 77.3% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 217089	(6.10 , N/A) (N/A , -0.08 , N/A)	517.0	N/A	0.9401 [1.0000]	94.0% { 92.8% }			
13C4_PFOA_IIS	(417.0 / 372.0) 213627	(7.85 , N/A) (N/A , -0.08 , N/A)	585.4	N/A	0.9717 [1.0000]	97.2% { 89.8% }			
13C5_PFNA_IIS	(468.0 / 423.0) 176727	(8.59 , N/A) (N/A , -0.07 , N/A)	679.2	N/A	0.9543 [1.0000]	95.4% { 87.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (8)
Acquired: 2022/12/21 - 15:55

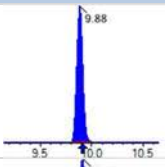
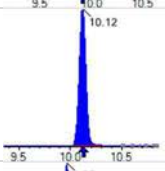
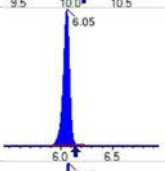
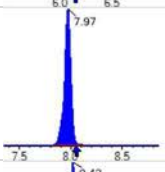
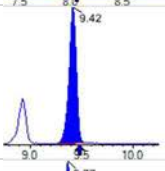
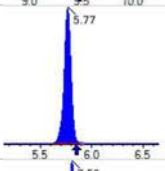
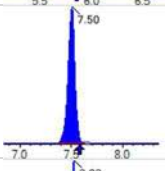
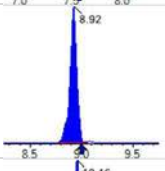
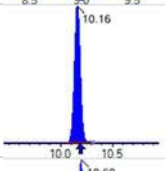
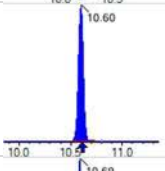
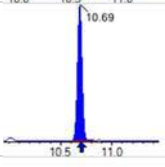
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 182763	(9.28 , N/A) (N/A , -0.07 , N/A)	341.1	N/A	0.9889 [1.0000]	98.9% { 105.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 402575	(7.97 , N/A) (N/A , -0.08 , N/A)	727.1	N/A	0.9972 [1.0000]	99.7% { 95.2% }			
13C4_PFOS_IIS	(502.8 / 79.9) 278049	(9.42 , N/A) (N/A , -0.06 , N/A)	306.0	N/A	0.8711 [1.0000]	87.1% { 84.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 961408	(3.66 , N/A) (N/A , -0.06 , N/A)	859.7	N/A	7.9622 [8.0000]	99.5% { 80.7% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 567388	(4.95 , N/A) (N/A , -0.09 , N/A)	677.6	N/A	3.7563 [4.0000]	93.9% { 81.5% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 485987	(6.10 , N/A) (N/A , -0.09 , N/A)	662.7	N/A	1.9454 [2.0000]	97.3% { 90.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 426996	(7.03 , N/A) (N/A , -0.08 , N/A)	645.9	N/A	1.9593 [2.0000]	98.0% { 87.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 469799	(7.85 , N/A) (N/A , -0.08 , N/A)	623.6	N/A	2.0053 [2.0000]	100.3% { 94.4% }			
13C9_PFNA_EIS	(472.0 / 427.0) 196241	(8.59 , N/A) (N/A , -0.08 , N/A)	331.3	N/A	1.0098 [1.0000]	101.0% { 89.7% }			
13C6_PFDA_EIS	(519.0 / 474.0) 243463	(9.27 , N/A) (N/A , -0.07 , N/A)	373.7	N/A	0.9366 [1.0000]	93.7% { 86.6% }			
13C7_PFUnA_EIS	(570.0 / 525.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A	0.0000 [1.0000]	0.0% { 0.0% }			S1,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (8)
Acquired: 2022/12/21 - 15:55

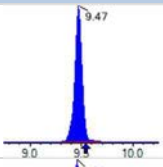
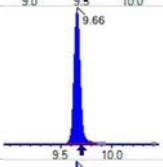
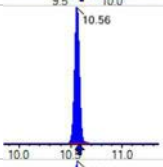
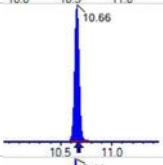
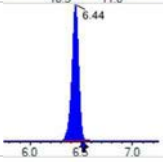
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 349119	(9.88 , N/A) (N/A , -0.02 , N/A)	640.2	N/A	0.9461 [1.0000]	94.6% { 90.1% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 200679	(10.12 , N/A) (N/A , -0.01 , N/A)	414.7	N/A	0.8188 [1.0000]	81.9% { 83.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1243843	(6.05 , N/A) (N/A , -0.09 , N/A)	653.6	N/A	1.8274 [2.0000]	91.4% { 90.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 703772	(7.97 , N/A) (N/A , -0.08 , N/A)	1021.2	N/A	1.9433 [2.0000]	97.2% { 93.4% }			
13C8_PFOS_EIS	(507.0 / 80.0) 920090	(9.42 , N/A) (N/A , -0.07 , N/A)	82.3	N/A	1.9281 [2.0000]	96.4% { 77.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 208461	(5.77 , N/A) (N/A , -0.09 , N/A)	614.0	N/A	3.6160 [4.0000]	90.4% { 93.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 287362	(7.50 , N/A) (N/A , -0.08 , N/A)	693.3	N/A	4.1402 [4.0000]	103.5% { 104.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 284164	(8.92 , N/A) (N/A , -0.08 , N/A)	462.0	N/A	4.0898 [4.0000]	102.2% { 96.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1248175	(10.16 , N/A) (N/A , -0.02 , N/A)	697.4	N/A	2.0692 [2.0000]	103.5% { 85.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 325759	(10.60 , N/A) (N/A , -0.01 , N/A)	1257.7	N/A	2.4735 [2.0000]	123.7% { 98.7% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 257195	(10.69 , N/A) (N/A , -0.01 , N/A)	672.7	N/A	2.1155 [2.0000]	105.8% { 90.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-CAL8
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (8)
Acquired: 2022/12/21 - 15:55

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) 455998	(9.47 , N/A) (N/A , -0.06 , N/A)	320.1	N/A	4.0185 [4.0000]	100.5% { 89.3% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 343842	(9.66 , N/A) (N/A , -0.04 , N/A)	325.4	N/A	3.4378 [4.0000]	85.9% { 73.0% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 382126	(10.56 , N/A) (N/A , -0.01 , N/A)	1054.7	N/A	20.6637 [20.0000]	103.3% { 88.5% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 168371	(10.66 , N/A) (N/A , -0.01 , N/A)	1121.1	N/A	19.9994 [20.0000]	100.0% { 92.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1038848	(6.44 , N/A) (N/A , -0.08 , N/A)	965.8	N/A	7.8213 [8.0000]	97.8% { 88.4% }			

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2252011
Laboratory ID: SB03941-SCV1
Sequence: SB03941
Standard ID: 22L0308

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	8.00	7.99	-0.1	30.00
PFPEA	4.00	4.05	1.3	30.00
PFHXA	2.00	2.06	2.9	30.00
PFHPA	2.00	1.83	-8.4	30.00
PFOA	2.00	1.92	-4.0	30.00
PFNA	2.00	1.98	-1.0	30.00
PFDA	2.00	1.94	-3.0	30.00
PFUnA	2.00	2.01	0.6	30.00
PFDOA	2.00	1.94	-2.8	30.00
PFTRDA	2.00	2.06	3.0	30.00
PFTEDA	2.00	2.52	25.9	30.00
PFBS	1.77	1.80	1.7	30.00
PFPES	1.88	1.90	1.2	30.00
PFHXS	1.83	1.70	-7.0	30.00
PFHPS	1.91	1.91	-0.1	30.00
PFOS	1.86	1.92	3.4	30.00
PFNS	1.92	2.20	14.7	30.00
PFDS	1.93	2.24	16.0	30.00
PFDOS	1.94	2.09	7.7	30.00
4:2FTS	7.50	7.40	-1.3	30.00
6:2FTS	7.60	7.32	-3.6	30.00
8:2FTS	7.68	8.45	10.0	30.00
PFOSA	2.00	1.87	-6.3	30.00
NMeFOSA	8.00	7.40	-7.5	30.00
NEtFOSA	8.00	7.80	-2.5	30.00
NMeFOSAA	2.00	2.24	11.9	30.00
NEtFOSAA	2.00	1.95	-2.5	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2252011
Laboratory ID: SB03941-SCV1
Sequence: SB03941
Standard ID: 22L0308

NMeFOSE	8.00	7.20	-10.0	30.00
NEtFOSE	8.00	7.47	-6.6	30.00
HFPO-DA	4.00	3.77	-5.8	30.00
ADONA	3.78	3.68	-2.6	30.00
PFEESA	3.56	3.55	-0.3	30.00
PFMPA	4.00	3.70	-7.5	30.00
PFMBA	4.00	3.61	-9.8	30.00
NFDHA	4.00	3.97	-0.8	30.00
9CL-PF3ONS	3.74	3.62	-3.2	30.00
11CL-PF3OUDS	3.78	3.53	-6.6	30.00
3:3FTCA	8.00	7.48	-6.5	30.00
5:3FTCA	8.00	8.11	1.4	30.00
7:3FTCA	8.00	8.03	0.3	30.00
13C4-PFBA	8.00	8.64	8.0	30.00
13C5-PFPEA	4.00	4.71	17.7	30.00
13C5-PFHXA	2.00	2.18	8.9	30.00
13C4-PFHPA	2.00	2.44	22.0	30.00
13C8-PFOA	2.00	2.51	25.6	30.00
13C9-PFNA	1.00	1.15	15.1	30.00
13C6-PFDA	1.00	1.02	1.6	30.00
13C7-PFUnA	1.00	1.01	0.9	30.00
13C2-PFDOA	1.00	1.12	12.1	30.00
13C2-PFTEDA	1.00	0.926	-7.4	30.00
13C3-PFBS	2.00	2.14	7.0	30.00
13C3-PFHXS	2.00	2.11	5.5	30.00
13C8-PFOS	2.00	2.03	1.7	30.00
13C2-4:2FTS	4.00	4.28	7.0	30.00
13C2-6:2FTS	4.00	4.19	4.8	30.00
13C2-8:2FTS	4.00	4.81	20.3	30.00

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2252011
Laboratory ID: SB03941-SCV1
Sequence: SB03941
Standard ID: 22L0308

13C8-PFOSA	2.00	2.54	26.8	30.00
D5-NETFOSA	2.00	2.46	23.2	30.00
D3-NMEFOSA	2.00	2.31	15.5	30.00
D3-NMEFOSAA	4.00	3.87	-3.3	30.00
D5-NETFOSAA	4.00	4.12	3.0	30.00
D7-NMEFOSE	20.0	22.3	11.5	30.00
D9-NETFOSE	20.0	21.7	8.5	30.00
13C3-HFPO-DA	8.00	9.26	15.7	30.00

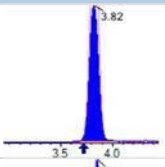
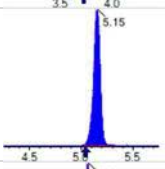
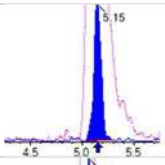
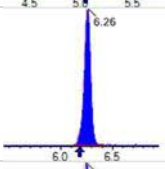
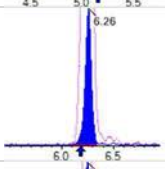
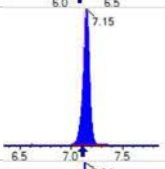
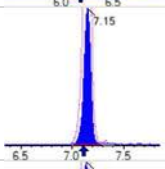
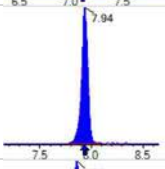
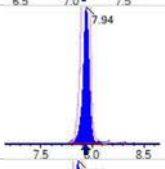
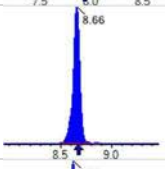
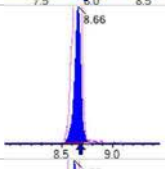
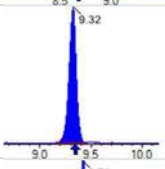
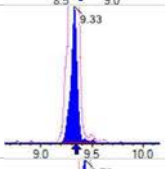
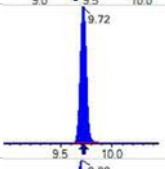
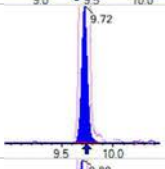
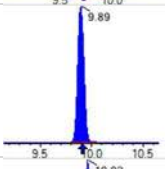
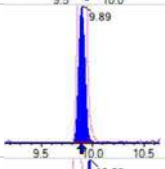
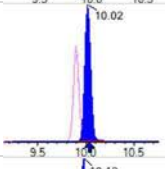
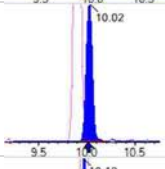
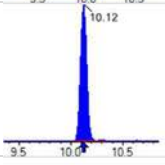
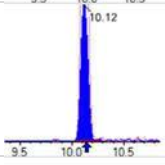
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (10)
Acquired: 2022/12/21 - 16:20

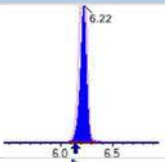
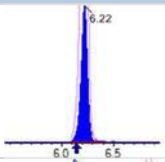
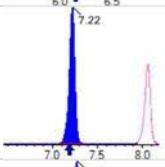
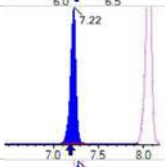
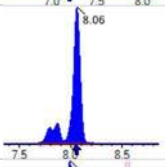
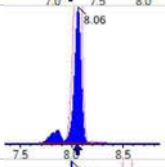
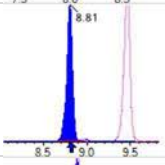
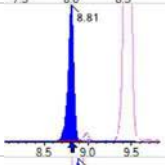
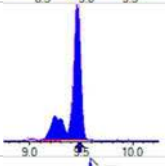
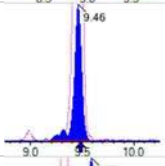
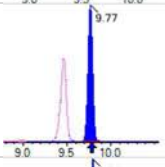
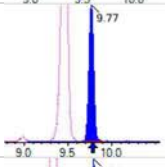
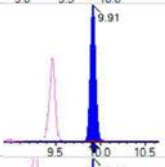
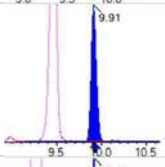
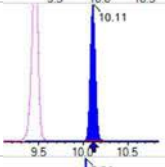
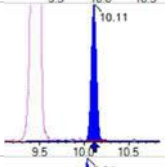
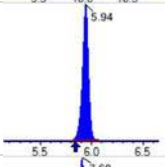
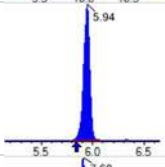
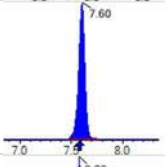
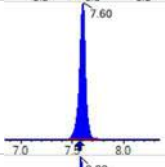
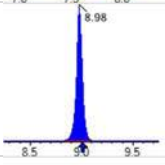
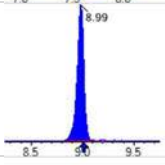
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 826160	(3.82 , 1.00) (0.00 , N/A , 0.0)	66.3	N/A 0.0 0.0	7.9908 [8.0000]	99.9%			
PFPeA	(262.9 / 219.0) 615408 (262.9 / 69.0) 7099	(5.15 , 1.00) (0.00 , N/A , 0.4)	793.3 166.5	0.0115 103.1 103.1	4.0518 [4.0000]	101.3%			
PFHxA	(313.0 / 269.0) 467843 (313.0 / 119.0) 45951	(6.26 , 1.00) (0.00 , N/A , 0.1)	507.4 322.7	0.0982 100.5 100.5	2.0587 [2.0000]	102.9%			
PFHpA	(363.0 / 319.0) 432075 (363.0 / 169.0) 138649	(7.15 , 1.00) (0.00 , N/A , 0.1)	541.7 385.0	0.3209 103.0 103.0	1.8321 [2.0000]	91.6%			
PFOA	(413.0 / 369.0) 540570 (413.0 / 169.0) 167693	(7.94 , 1.00) (0.00 , N/A , -0.3)	662.9 505.8	0.3102 94.9 94.9	1.9199 [2.0000]	96.0%			
PFNA	(463.0 / 419.0) 409308 (463.0 / 169.0) 78936	(8.66 , 1.00) (0.00 , N/A , -0.2)	495.2 94.8	0.1929 100.1 100.1	1.9793 [2.0000]	99.0%			
PFDA	(513.0 / 469.0) 482820 (513.0 / 169.0) 47535	(9.32 , 1.00) (0.00 , N/A , -0.3)	450.3 235.5	0.0985 103.0 103.0	1.9394 [2.0000]	97.0%			
PFUnA	(563.0 / 519.0) 587146 (563.0 / 169.0) 44298	(9.72 , 1.00) (0.00 , N/A , 0.0)	626.0 279.6	0.0754 86.9 86.9	2.0110 [2.0000]	100.6%			
PFDoA	(613.0 / 569.0) 686509 (613.0 / 169.0) 89917	(9.89 , 1.00) (0.00 , N/A , 0.0)	663.9 317.2	0.1310 94.1 94.1	1.9439 [2.0000]	97.2%			
PFTrDA	(663.0 / 619.0) 630517 (663.0 / 169.0) 105737	(10.02 , 1.01) (N/A , -0.01 , -0.3)	802.7 413.6	0.1677 81.9 81.9	2.0607 [2.0000]	103.0%			
PFTeDA	(713.0 / 669.0) 501366 (713.0 / 169.0) 87460	(10.12 , 1.00) (0.00 , N/A , 0.2)	703.1 221.5	0.1744 85.8 85.8	2.5178 [2.0000]	125.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (10)
Acquired: 2022/12/21 - 16:20

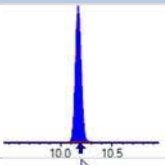
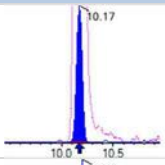
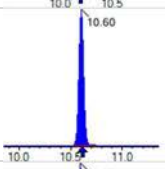
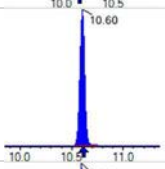
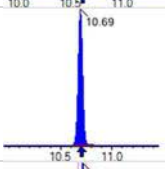
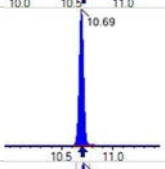
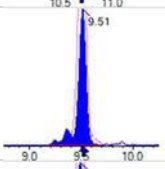
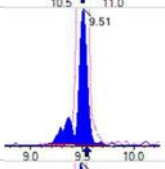
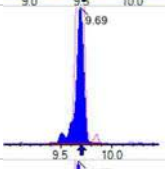
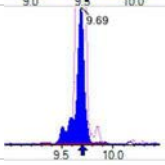
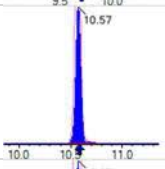
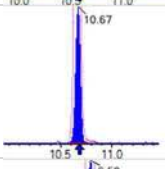
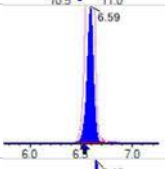
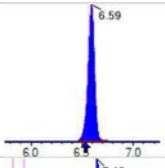
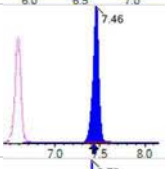
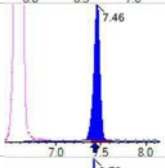
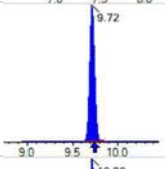
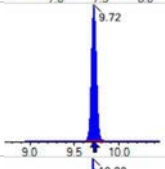
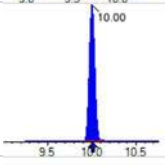
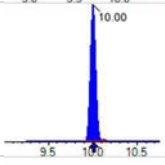
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 721250 (298.9 / 99.0) 444102	(6.22 , 1.00) (0.00 , N/A , 0.0)	841.6 645.4	0.6157 100.0 100.0	1.7993 [1.7695]	101.7%			
PFPeS	(349.0 / 80.0) 1304493 (349.0 / 99.0) 488870	(7.22 , 0.90) (N/A , 0.04 , -0.1)	955.5 884.4	0.3748 105.3 105.3	1.9033 [1.8768]	101.4%			
PFHxS	(399.0 / 80.0) 1014894 (399.0 / 99.0) 344027	(8.06 , 1.00) (0.00 , N/A , 0.0)	2419.1 74677.8	0.3390 100.8 100.8	1.7027 [1.8220]	93.5%			
PFHpS	(449.0 / 80.0) 879262 (449.0 / 99.0) 257815	(8.81 , 0.93) (N/A , -0.01 , -0.3)	667.5 488.6	0.2932 107.1 107.1	1.9077 [1.9028]	100.3%			
PFOS	(499.0 / 80.0) 1102928 (499.0 / 99.0) 236253	(9.46 , 1.00) (0.00 , N/A , 0.1)	115.1 129.8	0.2142 88.1 88.1	1.9236 [1.8550]	103.7%			
PFNS	(549.0 / 80.0) 1400580 (549.0 / 99.0) 348700	(9.77 , 1.03) (N/A , -0.01 , 0.0)	867.1 541.9	0.2490 102.0 102.0	2.2021 [1.9198]	114.7%			
PFDS	(599.0 / 80.0) 1581305 (599.0 / 99.0) 390095	(9.91 , 1.05) (N/A , -0.01 , 0.2)	992.5 464.1	0.2467 109.6 109.6	2.2395 [1.9262]	116.3%			
PFDoS	(698.9 / 80.0) 616747 (698.9 / 99.0) 133778	(10.11 , 1.07) (N/A , -0.01 , 0.0)	738.0 572.8	0.2169 88.7 88.7	2.0898 [1.9391]	107.8%			
4:2FTS	(327.0 / 307.0) 1514379 (327.0 / 81.0) 770935	(5.94 , 1.00) (0.00 , N/A , -0.1)	803.6 624.3	0.5091 103.1 103.1	7.3999 [7.4762]	99.0%			
6:2FTS	(427.0 / 407.0) 821840 (427.0 / 81.0) 567834	(7.60 , 1.00) (0.00 , N/A , 0.1)	946.6 705.6	0.6909 88.8 88.8	7.3229 [7.5923]	96.5%			
8:2FTS	(527.0 / 507.0) 1122259 (527.0 / 81.0) 538134	(8.98 , 1.00) (0.00 , N/A , -0.3)	414.3 515.2	0.4795 84.7 84.7	8.4461 [7.6663]	110.2%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (10)
Acquired: 2022/12/21 - 16:20

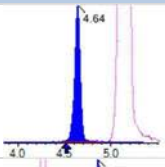
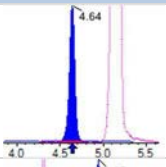
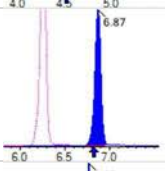
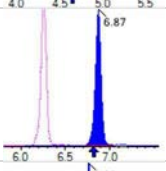
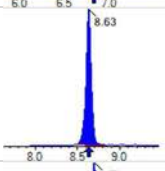
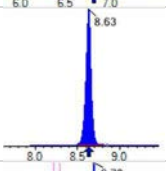
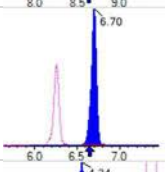
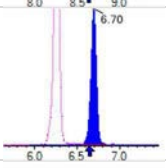
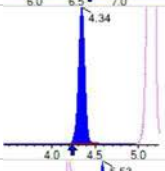
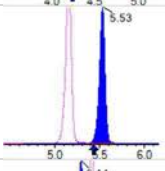
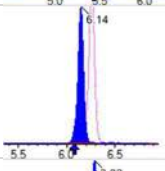
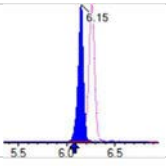
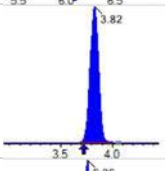
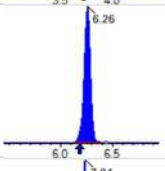
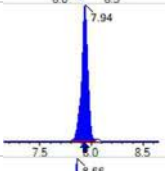
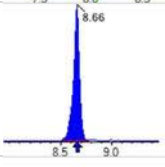
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 1474063 (498.0 / 478.0) 37178	(10.17 , 1.00) (0.00 , N/A , -0.1)	843.1 534.3	0.0252 121.0 121.0	1.8741 [2.0000]	93.7%			
NMeFOSA	(511.9 / 219.0) 999598 (511.9 / 169.0) 689735	(10.60 , 1.00) (0.00 , N/A , 0.0)	861.8 1151.0	0.6900 95.8 95.8	7.4034 [8.0000]	92.5%			
NEtFOSA	(526.0 / 219.0) 1146883 (526.0 / 169.0) 1178077	(10.69 , 1.00) (0.00 , N/A , 0.0)	1268.4 1089.4	1.0272 97.1 97.1	7.8009 [8.0000]	97.5%			
NMeFOSAA	(570.0 / 419.0) 208249 (570.0 / 483.0) 104771	(9.51 , 1.00) (0.00 , N/A , 0.2)	375.1 198.5	0.5031 81.8 81.8	2.2376 [2.0000]	111.9%			
NEtFOSAA	(584.0 / 419.0) 196413 (584.0 / 526.0) 111297	(9.69 , 1.00) (0.01 , N/A , 0.2)	455.1 117896.6	0.5666 77.3 77.3	1.9508 [2.0000]	97.5%			
NMeFOSE	(616.1 / 59.0) 203936	(10.57 , 1.00) (0.01 , N/A , 0.0)	1358.7	N/A 0.0 0.0	7.2019 [8.0000]	90.0%			
NEtFOSE	(630.0 / 59.0) 38033	(10.67 , 1.00) (0.01 , N/A , 0.0)	607.4	N/A 0.0 0.0	7.4728 [8.0000]	93.4%			
HFPO-DA	(285.0 / 169.0) 342689 (285.0 / 185.0) 1020987	(6.59 , 1.00) (0.00 , N/A , -0.1)	626.5 698.6	2.9793 108.5 108.5	3.7699 [4.0000]	94.2%			
ADONA	(377.0 / 85.0) 1486505 (377.0 / 251.0) 199325	(7.46 , 1.13) (N/A , 0.03 , 0.1)	678.2 385.1	0.1341 107.7 107.7	3.6817 [3.7708]	97.6%			
9Cl-Pf3ONS	(531.0 / 351.0) 4066455 (533.0 / 353.0) 1234707	(9.72 , 1.47) (N/A , -0.01 , 0.0)	855.0 727.0	0.3036 102.6 102.6	3.6202 [3.7330]	97.0%			
11Cl-PF3OUDS	(631.0 / 451.0) 1991501 (633.0 / 453.0) 617773	(10.00 , 1.52) (N/A , -0.01 , 0.0)	1070.3 1217.2	0.3102 93.8 93.8	3.5291 [3.7728]	93.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

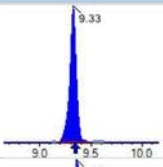
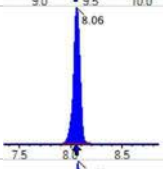
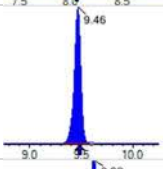
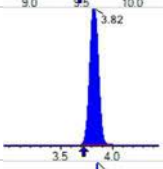
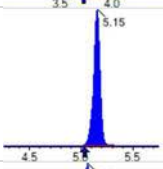
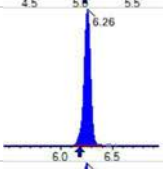
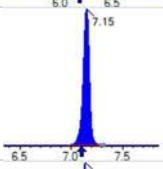
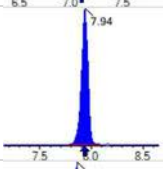
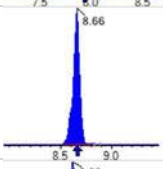
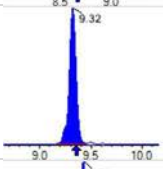
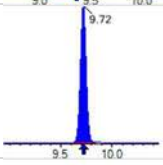
Sample I.D.: SB03941-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (10)
Acquired: 2022/12/21 - 16:20

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) 39196 (241.0 / 117.0) 66770	(4.64 , 0.90) (N/A , 0.12 , 0.0)	403.7 453.1	1.7035 101.8 101.8	7.4773 [8.0000]	93.5%			
5:3FTCA	(341.0 / 236.7) 325755 (341.0 / 217.0) 500274	(6.87 , 1.10) (N/A , 0.05 , 0.0)	422.5 555.2	1.5357 104.9 104.9	8.1123 [8.0000]	101.4%			
7:3FTCA	(441.0 / 317.0) 370796 (441.0 / 337.0) 321550	(8.63 , 1.38) (N/A , 0.00 , 0.0)	380.2 406.9	0.8672 103.5 103.5	8.0251 [8.0000]	100.3%			
PFEESA	(315.0 / 135.0) 883452 (315.0 / 83.0) 263398	(6.70 , 1.07) (N/A , 0.06 , 0.2)	692.7 623.8	0.2981 97.1 97.1	3.5508 [3.5698]	99.5%			
PFMPA	(229.0 / 85.0) 154156	(4.34 , 0.84) (N/A , 0.12 , 0.0)	850.9	N/A 0.0 0.0	3.6980 [4.0000]	92.5%			
PFMBA	(279.0 / 85.0) 519912	(5.53 , 1.07) (N/A , 0.11 , 0.0)	881.8	N/A 0.0 0.0	3.6083 [4.0000]	90.2%			
NFDHA	(295.0 / 201.0) 454901 (295.0 / 85.0) 446222	(6.14 , 0.98) (N/A , 0.08 , -0.1)	909.2 665.8	0.9809 111.1 111.1	3.9698 [4.0000]	99.2%			
13C3_PFBA_IIS	(216.0 / 172.0) 142617	(3.82 , N/A) (N/A , 0.11 , N/A)	772.3	N/A	1.0246 [1.0000]	102.5% { 94.0% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 211230	(6.26 , N/A) (N/A , 0.07 , N/A)	637.8	N/A	0.9147 [1.0000]	91.5% { 90.3% }			
13C4_PFOA_IIS	(417.0 / 372.0) 207848	(7.94 , N/A) (N/A , 0.01 , N/A)	791.1	N/A	0.9454 [1.0000]	94.5% { 87.3% }			
13C5_PFNA_IIS	(468.0 / 423.0) 190473	(8.66 , N/A) (N/A , -0.01 , N/A)	365.8	N/A	1.0286 [1.0000]	102.9% { 94.2% }			

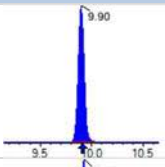
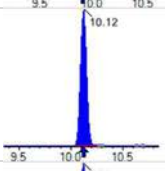
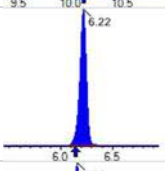
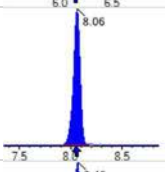
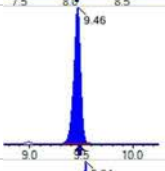
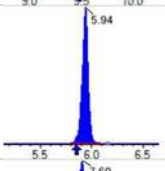
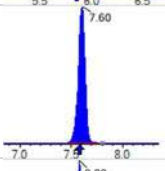
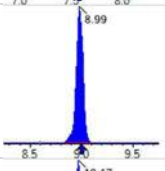
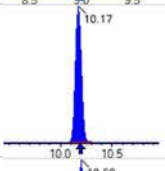
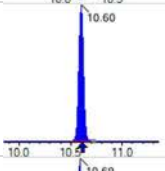
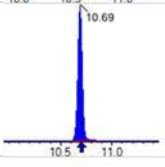
APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: SB03941-SCV1 | Quant Method: 1633 - S2022-12-21A
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2022-12-21A (10)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2022-12-21.dam | Acquired: 2022/12/21 - 16:20

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	(515.1 / 470.1) 180965	(9.33 , N/A) (N/A , -0.02 , N/A)	300.8	N/A	0.9792 [1.0000]	97.9% { 104.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 404075	(8.06 , N/A) (N/A , 0.01 , N/A)	755.5	N/A	1.0009 [1.0000]	100.1% { 95.6% }			
13C4_PFOS_IIS	(502.8 / 79.9) 302637	(9.46 , N/A) (N/A , -0.02 , N/A)	490.6	N/A	0.9482 [1.0000]	94.8% { 92.3% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1267826	(3.82 , N/A) (N/A , 0.10 , N/A)	950.4	N/A	8.6374 [8.0000]	108.0% { 106.5% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 691765	(5.15 , N/A) (N/A , 0.12 , N/A)	655.0	N/A	4.7068 [4.0000]	117.7% { 99.4% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 529227	(6.26 , N/A) (N/A , 0.07 , N/A)	586.3	N/A	2.1772 [2.0000]	108.9% { 98.2% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 517454	(7.15 , N/A) (N/A , 0.04 , N/A)	625.4	N/A	2.4402 [2.0000]	122.0% { 105.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 572643	(7.94 , N/A) (N/A , 0.01 , N/A)	628.4	N/A	2.5123 [2.0000]	125.6% { 115.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 241000	(8.66 , N/A) (N/A , -0.01 , N/A)	482.3	N/A	1.1506 [1.0000]	115.1% { 110.2% }			
13C6_PFDA_EIS	(519.0 / 474.0) 261552	(9.32 , N/A) (N/A , -0.02 , N/A)	324.9	N/A	1.0162 [1.0000]	101.6% { 93.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 369444	(9.72 , N/A) (N/A , -0.01 , N/A)	383.8	N/A	1.0092 [1.0000]	100.9% { 92.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK | Sample I.D.: SB03941-SCV1 | Quant Method: 1633 - S2022-12-21A
Instrument: Saphira | DF , IV: 1 , 10.0µL | Path: S2022-12-21A (10)
Type: Sciex Q3 5500 | Acquisition Method: 1633 2022-12-21.dam | Acquired: 2022/12/21 - 16:20

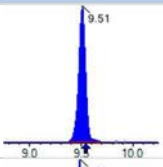
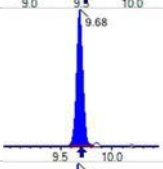
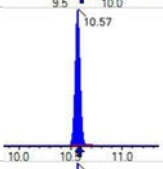
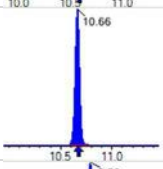
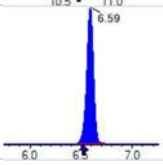
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 409663	(9.90 , N/A) (N/A , -0.01 , N/A)	784.5	N/A	1.1211 [1.0000]	112.1% { 105.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 224684	(10.12 , N/A) (N/A , -0.01 , N/A)	303.5	N/A	0.9259 [1.0000]	92.6% { 92.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1462249	(6.22 , N/A) (N/A , 0.08 , N/A)	885.8	N/A	2.1403 [2.0000]	107.0% { 106.5% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 767313	(8.06 , N/A) (N/A , 0.01 , N/A)	732.1	N/A	2.1109 [2.0000]	105.5% { 101.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1056462	(9.46 , N/A) (N/A , -0.02 , N/A)	326.6	N/A	2.0340 [2.0000]	101.7% { 88.8% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 247570	(5.94 , N/A) (N/A , 0.09 , N/A)	728.4	N/A	4.2784 [4.0000]	107.0% { 110.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 291971	(7.60 , N/A) (N/A , 0.02 , N/A)	611.1	N/A	4.1910 [4.0000]	104.8% { 106.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 335471	(8.99 , N/A) (N/A , -0.02 , N/A)	757.5	N/A	4.8103 [4.0000]	120.3% { 113.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1664459	(10.17 , N/A) (N/A , -0.01 , N/A)	652.8	N/A	2.5352 [2.0000]	126.8% { 113.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 331270	(10.60 , N/A) (N/A , -0.01 , N/A)	916.6	N/A	2.3109 [2.0000]	115.5% { 100.4% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 325977	(10.69 , N/A) (N/A , -0.01 , N/A)	1349.4	N/A	2.4634 [2.0000]	123.2% { 114.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-SCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (10)
Acquired: 2022/12/21 - 16:20

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) 477723	(9.51 , N/A) (N/A , -0.02 , N/A)	407.1	N/A	3.8679 [4.0000]	96.7% { 93.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 448595	(9.68 , N/A) (N/A , -0.01 , N/A)	368.4	N/A	4.1207 [4.0000]	103.0% { 95.2% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 448688	(10.57 , N/A) (N/A , -0.01 , N/A)	1653.3	N/A	22.2917 [20.0000]	111.5% { 104.0% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 198798	(10.66 , N/A) (N/A , -0.01 , N/A)	1695.3	N/A	21.6950 [20.0000]	108.5% { 109.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1196436	(6.59 , N/A) (N/A , 0.06 , N/A)	797.8	N/A	9.2576 [8.0000]	115.7% { 101.9% }			

LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2252011
Laboratory ID: SB03951-LCV1
Sequence: SB03951
Standard ID: 22L0300

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
PFBA	0.400	0.398	-0.5	30.00
PFPEA	0.200	0.213	6.4	30.00
PFHXA	0.100	0.115	15.1	30.00
PFHPA	0.100	0.103	2.5	30.00
PFOA	0.100	0.109	8.8	30.00
PFNA	0.100	0.117	17.1	30.00
PFDA	0.100	0.110	9.9	30.00
PFUnA	0.100	0.106	6.3	30.00
PFDOA	0.100	0.0924	-7.6	30.00
PFTRDA	0.100	0.115	15.3	30.00
PFTEDA	0.100	0.139	38.7 *	30.00
PFBS	0.0885	0.0780	-11.8	30.00
PFPES	0.0940	0.0881	-6.3	30.00
PFHXS	0.0915	0.0946	3.4	30.00
PFHPS	0.0955	0.110	15.0	30.00
PFOS	0.0930	0.115	24.0	30.00
PFNS	0.0960	0.106	10.8	30.00
PFDS	0.0965	0.123	28.0	30.00
PFDOS	0.0970	0.106	9.2	30.00
4:2FTS	0.375	0.314	-16.4	30.00
6:2FTS	0.380	0.410	7.8	30.00
8:2FTS	0.384	0.357	-7.1	30.00
PFOSA	0.100	0.115	14.9	30.00
NMeFOSA	0.400	0.471	17.7	30.00
NEtFOSA	0.400	0.442	10.5	30.00
NMeFOSAA	0.100	0.111	10.7	30.00
NEtFOSAA	0.100	0.0789	-21.1	30.00
NMeFOSE	0.400	0.426	6.4	30.00

LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 1633

Laboratory: APPL, LLC
SDG:
Client: AECOM
Project: Red Hill AFFF Assessment Sampling
Calibration: 2252011
Laboratory ID: SB03951-LCV1
Sequence: SB03951
Standard ID: 22L0300

NEtFOSE	0.400	0.324	-19.0	30.00
HFPO-DA	0.200	0.180	-10.0	30.00
ADONA	0.189	0.185	-2.1	30.00
PFEESA	0.178	0.165	-7.4	30.00
PFMPA	0.200	0.205	2.6	30.00
PFMBA	0.200	0.188	-5.9	30.00
NFDHA	0.200	0.222	11.0	30.00
9CL-PF3ONS	0.187	0.164	-12.1	30.00
11CL-PF3OUDS	0.189	0.164	-13.3	30.00
3:3FTCA	0.400	0.377	-5.8	30.00
5:3FTCA	0.400	0.426	6.6	30.00
7:3FTCA	0.400	0.434	8.4	30.00

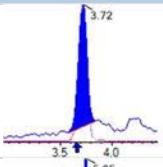
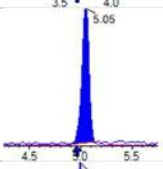
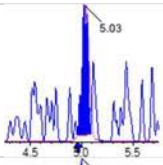
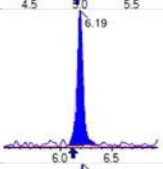
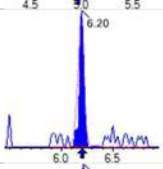
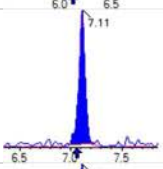
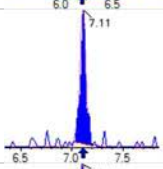
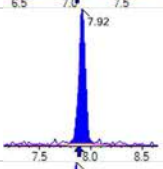
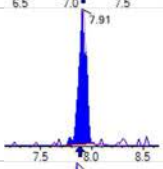
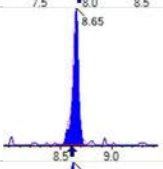
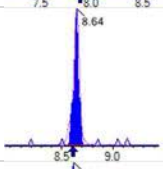
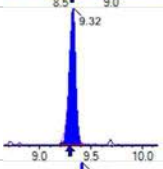
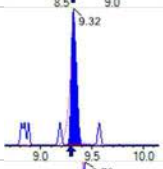
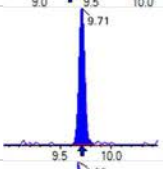
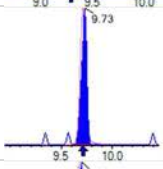
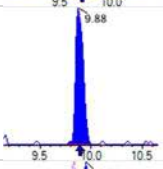
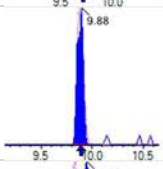
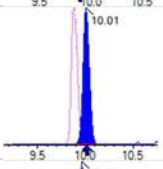
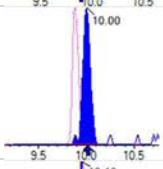
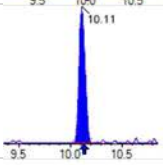
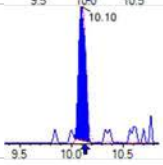
* Values outside of QC limits

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (2)
Acquired: 2022/12/22 - 11:14

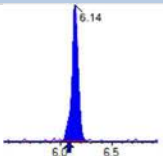
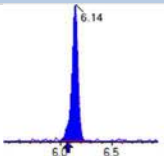
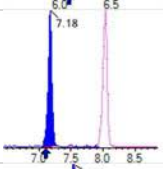
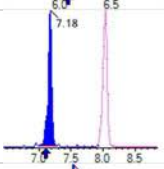
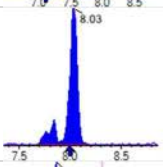
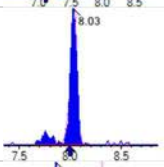
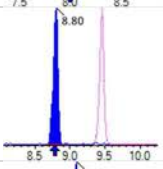
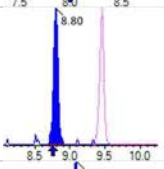
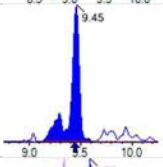
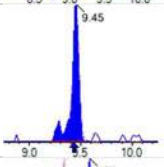
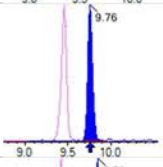
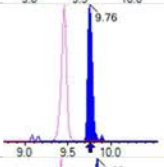
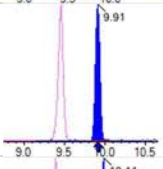
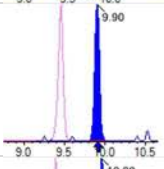
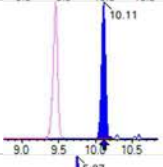
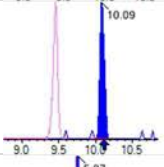
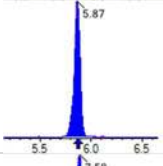
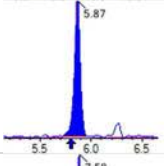
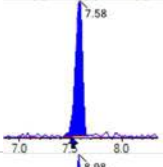
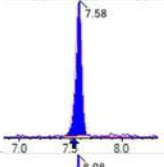
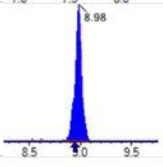
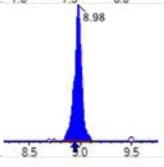
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 43849	(3.72 , 1.00) (0.00 , N/A , 0.0)	47.4	N/A 0.0 0.0	0.3982 [0.4000]	99.5%			
PFPeA	(262.9 / 219.0) 33025 (262.9 / 69.0) 324	(5.05 , 1.00) (0.00 , N/A , 0.9)	187.3 9.9	0.0098 87.6 94.3	0.2128 [0.2000]	106.4%			
PFHxA	(313.0 / 269.0) 28190 (313.0 / 119.0) 2074	(6.19 , 1.00) (0.00 , N/A , -0.4)	102.9 39.3	0.0736 75.3 82.4	0.1151 [0.1000]	115.1%			
PFHpA	(363.0 / 319.0) 21648 (363.0 / 169.0) 5491	(7.11 , 1.00) (0.00 , N/A , 0.0)	89.2 55.5	0.2536 81.4 82.3	0.1025 [0.1000]	102.5%			
PFOA	(413.0 / 369.0) 27606 (413.0 / 169.0) 10696	(7.92 , 1.00) (0.00 , N/A , 0.3)	133.0 99.0	0.3875 118.6 131.0	0.1088 [0.1000]	108.8%			
PFNA	(463.0 / 419.0) 20286 (463.0 / 169.0) 6368	(8.65 , 1.00) (0.01 , N/A , 0.5)	126.3 83.9	0.3139 162.9 150.7	0.1171 [0.1000]	117.1%			IR2,
PFDA	(513.0 / 469.0) 29031 (513.0 / 169.0) 2696	(9.32 , 1.00) (0.00 , N/A , 0.0)	183.4 70.6	0.0929 97.2 94.5	0.1099 [0.1000]	109.9%			
PFUnA	(563.0 / 519.0) 31385 (563.0 / 169.0) 5290	(9.71 , 1.00) (0.00 , N/A , -1.0)	139.2 130.3	0.1686 194.1 188.0	0.1063 [0.1000]	106.3%			IR2,
PFDoA	(613.0 / 569.0) 28685 (613.0 / 169.0) 8034	(9.88 , 1.00) (0.00 , N/A , 0.0)	130.3 115.9	0.2801 201.2 213.0	0.0924 [0.1000]	92.4%			IR2,
PFTrDA	(663.0 / 619.0) 31017 (663.0 / 169.0) 10350	(10.01 , 1.01) (N/A , -0.01 , 0.3)	367.3 68.0	0.3337 163.0 146.0	0.1153 [0.1000]	115.3%			IR2,
PFTeDA	(713.0 / 669.0) 26604 (713.0 / 169.0) 5809	(10.11 , 1.00) (0.00 , N/A , 0.5)	18.7 35.2	0.2183 107.3 106.4	0.1387 [0.1000]	138.7%			QC,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (2)
Acquired: 2022/12/22 - 11:14

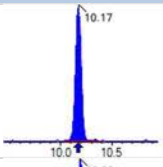
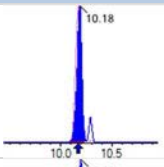
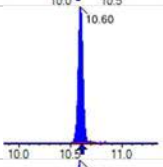
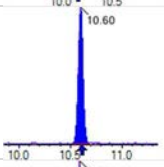
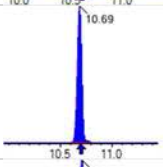
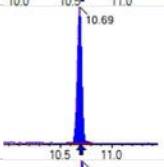
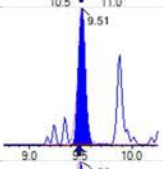
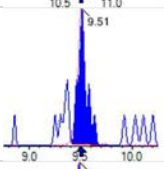
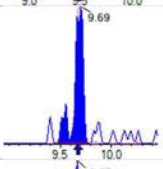
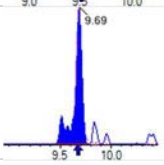
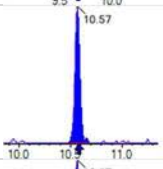
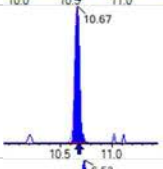
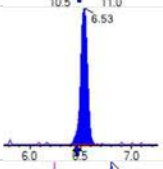
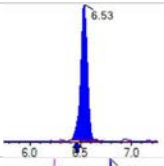
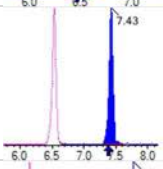
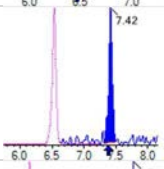
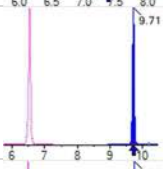
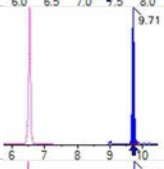
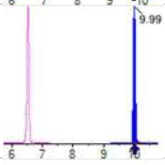
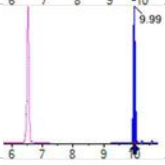
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 30593 (298.9 / 99.0) 24923	(6.14 , 1.00) (0.00 , N/A , 0.0)	223.0 187.4	0.8147 132.4 124.4	0.0780 [0.0885]	88.2%			
PFPeS	(349.0 / 80.0) 62381 (349.0 / 99.0) 22889	(7.18 , 0.89) (N/A , 0.06 , 0.0)	234.7 196.1	0.3669 103.1 95.5	0.0881 [0.0938]	93.8%			
PFHxS	(399.0 / 80.0) 58273 (399.0 / 99.0) 18743	(8.03 , 1.00) (0.00 , N/A , 0.1)	828.8 6172.7	0.3216 95.7 97.2	0.0946 [0.0911]	103.8%			
PFHpS	(449.0 / 80.0) 53380 (449.0 / 99.0) 15272	(8.80 , 0.93) (N/A , 0.03 , 0.1)	299.9 145.3	0.2861 104.5 112.5	0.1098 [0.0951]	115.4%			
PFOS	(499.0 / 80.0) 69748 (499.0 / 99.0) 13321	(9.45 , 1.00) (0.00 , N/A , 0.2)	144.6 68.1	0.1910 78.5 83.5	0.1153 [0.0927]	124.4%			
PFNS	(549.0 / 80.0) 71336 (549.0 / 99.0) 12422	(9.76 , 1.03) (N/A , 0.00 , 0.1)	277.5 189.8	0.1741 71.4 68.2	0.1063 [0.0960]	110.8%			
PFDS	(599.0 / 80.0) 91956 (599.0 / 99.0) 16604	(9.91 , 1.05) (N/A , 0.00 , 0.3)	317.6 111.6	0.1806 80.2 77.2	0.1235 [0.0963]	128.2%			
PFDoS	(698.9 / 80.0) 32962 (698.9 / 99.0) 9833	(10.11 , 1.07) (N/A , 0.00 , 1.3)	264.4 17.8	0.2983 121.9 153.7	0.1059 [0.0970]	109.2%			IR2,
4:2FTS	(327.0 / 307.0) 70063 (327.0 / 81.0) 46903	(5.87 , 1.00) (0.01 , N/A , 0.0)	399.9 154.7	0.6694 135.5 116.9	0.3137 [0.3738]	83.9%			
6:2FTS	(427.0 / 407.0) 48949 (427.0 / 81.0) 40250	(7.58 , 1.00) (0.00 , N/A , 0.1)	138.4 212.7	0.8223 105.7 117.9	0.4098 [0.3796]	107.9%			
8:2FTS	(527.0 / 507.0) 39792 (527.0 / 81.0) 32476	(8.98 , 1.00) (0.00 , N/A , 0.1)	340.0 177.0	0.8161 144.2 148.2	0.3567 [0.3833]	93.1%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (2)
Acquired: 2022/12/22 - 11:14

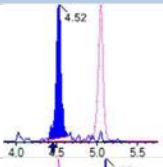
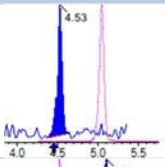
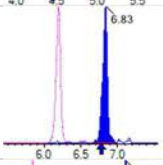
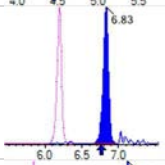
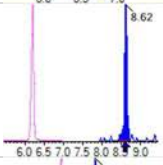
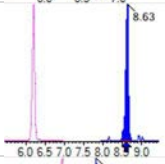
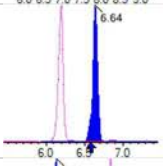
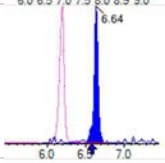
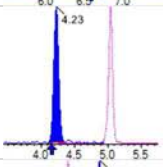
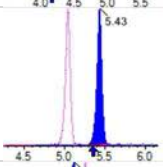
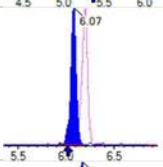
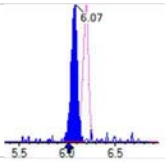
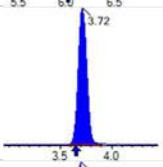
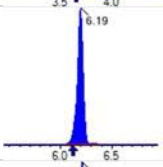
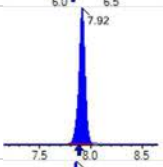
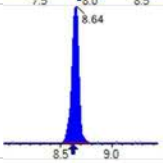
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 84737 (498.0 / 478.0) 2413	(10.17 , 1.00) (0.00 , N/A , -0.7)	370.7 66.5	0.0285 136.6 117.4	0.1149 [0.1000]	114.9%			
NMeFOSA	(511.9 / 219.0) 60872 (511.9 / 169.0) 33917	(10.60 , 1.00) (0.00 , N/A , -0.1)	625.6 398.7	0.5572 77.4 82.4	0.4706 [0.4000]	117.7%			
NEtFOSA	(526.0 / 219.0) 58190 (526.0 / 169.0) 61870	(10.69 , 1.00) (0.00 , N/A , -0.1)	585.9 547.8	1.0633 100.5 100.3	0.4419 [0.4000]	110.5%			
NMeFOSAA	(570.0 / 419.0) 11247 (570.0 / 483.0) 3240	(9.51 , 1.00) (0.01 , N/A , -0.1)	88.9 44.7	0.2881 46.9 57.6	0.1107 [0.1000]	110.7%			IR1,
NEtFOSAA	(584.0 / 419.0) 8264 (584.0 / 526.0) 8267	(9.69 , 1.00) (0.01 , N/A , 0.2)	47.4 51.5	1.0004 136.4 137.7	0.0789 [0.1000]	78.9%			
NMeFOSE	(616.1 / 59.0) 10857	(10.57 , 1.00) (0.01 , N/A , 0.0)	203.2	N/A 0.0 0.0	0.4256 [0.4000]	106.4%			
NEtFOSE	(630.0 / 59.0) 1665	(10.67 , 1.00) (0.01 , N/A , 0.0)	793.9	N/A 0.0 0.0	0.3238 [0.4000]	81.0%			
HFPO-DA	(285.0 / 169.0) 16385 (285.0 / 185.0) 49552	(6.53 , 1.00) (0.00 , N/A , -0.1)	232.5 275.5	3.0242 110.2 116.2	0.1799 [0.2000]	90.0%			
ADONA	(377.0 / 85.0) 74840 (377.0 / 251.0) 10655	(7.43 , 1.14) (N/A , 0.05 , 0.5)	405.7 56.9	0.1424 114.3 111.5	0.1850 [0.1885]	98.1%			
9Cl-Pf3ONS	(531.0 / 351.0) 200793 (533.0 / 353.0) 65513	(9.71 , 1.49) (N/A , 0.00 , 0.3)	354.5 256.5	0.3263 110.2 112.4	0.1643 [0.1867]	88.0%			
11Cl-PF3OUDS	(631.0 / 451.0) 92694 (633.0 / 453.0) 27149	(9.99 , 1.53) (N/A , -0.01 , 0.2)	463.1 763.6	0.2929 88.5 91.1	0.1639 [0.1886]	86.9%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (2)
Acquired: 2022/12/22 - 11:14

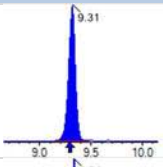
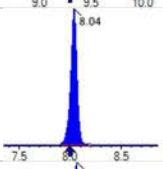
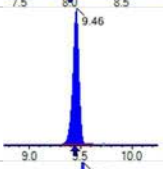
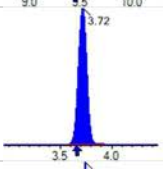
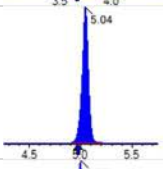
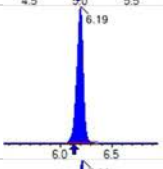
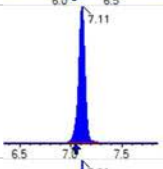
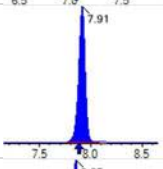
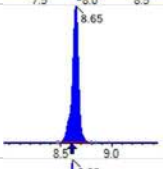
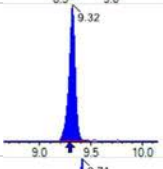
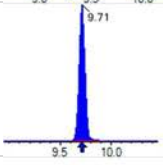
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 2017 (241.0 / 117.0) 4545	(4.52 , 0.90) (N/A , 0.08 , -0.3)	79.7 55.8	2.2528 134.6 134.2	0.3766 [0.4000]	94.2%			
5:3FTCA	(341.0 / 236.7) 18450 (341.0 / 217.0) 24814	(6.83 , 1.10) (N/A , 0.07 , 0.3)	173.8 126.1	1.3449 91.9 83.7	0.4263 [0.4000]	106.6%			
7:3FTCA	(441.0 / 317.0) 21598 (441.0 / 337.0) 15586	(8.62 , 1.39) (N/A , 0.03 , -0.5)	92.5 129.6	0.7216 86.2 86.5	0.4337 [0.4000]	108.4%			
PFEESA	(315.0 / 135.0) 44202 (315.0 / 83.0) 14794	(6.64 , 1.07) (N/A , 0.06 , 0.1)	423.1 109.0	0.3347 109.0 113.3	0.1648 [0.1785]	92.3%			
PFMPA	(229.0 / 85.0) 8741	(4.23 , 0.84) (N/A , 0.07 , 0.0)	234.4	N/A 0.0 0.0	0.2052 [0.2000]	102.6%			
PFMBA	(279.0 / 85.0) 27711	(5.43 , 1.08) (N/A , 0.08 , 0.0)	438.5	N/A 0.0 0.0	0.1882 [0.2000]	94.1%			
NFDHA	(295.0 / 201.0) 27421 (295.0 / 85.0) 23355	(6.07 , 0.98) (N/A , 0.07 , 0.2)	261.2 49.5	0.8517 96.5 97.2	0.2220 [0.2000]	111.0%			
13C3_PFBA_IIS	(216.0 / 172.0) 149416	(3.72 , N/A) (N/A , 0.06 , N/A)	849.1	N/A	1.0734 [1.0000]	107.3% { 95.1% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 235804	(6.19 , N/A) (N/A , 0.07 , N/A)	486.5	N/A	1.0212 [1.0000]	102.1% { 99.9% }			
13C4_PFOA_IIS	(417.0 / 372.0) 237795	(7.92 , N/A) (N/A , 0.04 , N/A)	630.7	N/A	1.0816 [1.0000]	108.2% { 92.6% }			
13C5_PFNA_IIS	(468.0 / 423.0) 197981	(8.64 , N/A) (N/A , 0.03 , N/A)	508.8	N/A	1.0691 [1.0000]	106.9% { 84.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (2)
Acquired: 2022/12/22 - 11:14

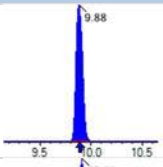
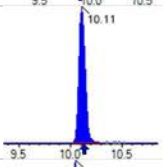
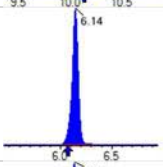
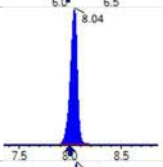
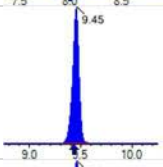
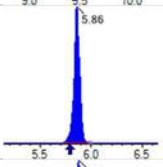
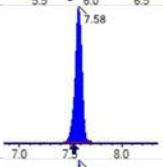
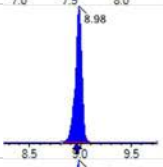
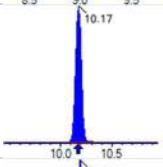
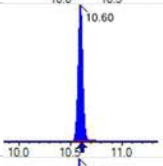
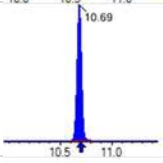
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 198543	(9.31 , N/A) (N/A , 0.02 , N/A)	319.6	N/A	1.0743 [1.0000]	107.4% { 106.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 433793	(8.04 , N/A) (N/A , 0.04 , N/A)	800.2	N/A	1.0745 [1.0000]	107.5% { 97.2% }			
13C4_PFOS_IIS	(502.8 / 79.9) 342798	(9.46 , N/A) (N/A , 0.02 , N/A)	514.7	N/A	1.0740 [1.0000]	107.4% { 98.9% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1350396	(3.72 , N/A) (N/A , 0.07 , N/A)	854.9	N/A	8.7813 [8.0000]	109.8% { 107.5% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 706916	(5.04 , N/A) (N/A , 0.08 , N/A)	674.5	N/A	4.3086 [4.0000]	107.7% { 104.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 570391	(6.19 , N/A) (N/A , 0.07 , N/A)	517.3	N/A	2.1020 [2.0000]	105.1% { 106.4% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 463373	(7.11 , N/A) (N/A , 0.06 , N/A)	563.5	N/A	1.9575 [2.0000]	97.9% { 103.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 516185	(7.91 , N/A) (N/A , 0.04 , N/A)	616.4	N/A	1.9794 [2.0000]	99.0% { 86.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 201968	(8.65 , N/A) (N/A , 0.03 , N/A)	455.2	N/A	0.9277 [1.0000]	92.8% { 87.2% }			
13C6_PFDA_EIS	(519.0 / 474.0) 277526	(9.32 , N/A) (N/A , 0.03 , N/A)	347.4	N/A	0.9828 [1.0000]	98.3% { 100.8% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 373620	(9.71 , N/A) (N/A , 0.00 , N/A)	501.2	N/A	0.9302 [1.0000]	93.0% { 100.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (2)
Acquired: 2022/12/22 - 11:14

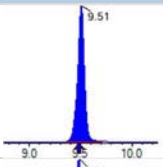
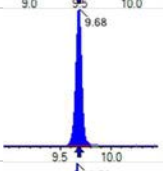
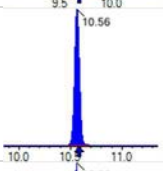
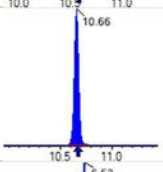
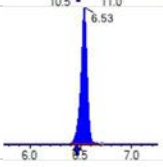
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 360218	(9.88 , N/A) (N/A , -0.01 , N/A)	670.2	N/A	0.8985 [1.0000]	89.9% { 98.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 216489	(10.11 , N/A) (N/A , -0.01 , N/A)	356.9	N/A	0.8131 [1.0000]	81.3% { 84.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1430211	(6.14 , N/A) (N/A , 0.07 , N/A)	665.5	N/A	1.9500 [2.0000]	97.5% { 107.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 793030	(8.04 , N/A) (N/A , 0.04 , N/A)	865.4	N/A	2.0322 [2.0000]	101.6% { 103.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1114220	(9.45 , N/A) (N/A , 0.02 , N/A)	619.8	N/A	1.8939 [2.0000]	94.7% { 99.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 270205	(5.86 , N/A) (N/A , 0.07 , N/A)	647.9	N/A	4.3497 [4.0000]	108.7% { 120.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 310773	(7.58 , N/A) (N/A , 0.05 , N/A)	726.9	N/A	4.1552 [4.0000]	103.9% { 92.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 281638	(8.98 , N/A) (N/A , 0.03 , N/A)	437.7	N/A	3.7617 [4.0000]	94.0% { 89.1% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1561120	(10.17 , N/A) (N/A , 0.00 , N/A)	1127.8	N/A	2.0992 [2.0000]	105.0% { 114.4% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 317356	(10.60 , N/A) (N/A , -0.01 , N/A)	822.0	N/A	1.9545 [2.0000]	97.7% { 110.5% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 291977	(10.69 , N/A) (N/A , -0.01 , N/A)	1303.7	N/A	1.9479 [2.0000]	97.4% { 96.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-LCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (2)
Acquired: 2022/12/22 - 11:14

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 521360	(9.51 , N/A) (N/A , 0.02 , N/A)	373.5	N/A	3.7267 [4.0000]	93.2% { 98.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 466379	(9.68 , N/A) (N/A , 0.00 , N/A)	389.5	N/A	3.7822 [4.0000]	94.6% { 112.4% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 404186	(10.56 , N/A) (N/A , -0.01 , N/A)	1088.1	N/A	17.7282 [20.0000]	88.6% { 93.0% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 200858	(10.66 , N/A) (N/A , -0.01 , N/A)	1642.9	N/A	19.3518 [20.0000]	96.8% { 101.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1198727	(6.53 , N/A) (N/A , 0.07 , N/A)	676.0	N/A	8.3087 [8.0000]	103.9% { 98.5% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0134
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2252011
Standard ID:	22L0304	Sequence:	SB03951

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SB03951-CCV1	PFBA	20.0	21.0	105	ng/mL	+/- 30.00%
	PFPEA	10.0	10.4	104	ng/mL	+/- 30.00%
	PFHXA	5.00	5.11	102	ng/mL	+/- 30.00%
	PFHPA	5.00	5.12	102	ng/mL	+/- 30.00%
	PFOA	5.00	4.41	88.2	ng/mL	+/- 30.00%
	PFNA	5.00	4.89	97.8	ng/mL	+/- 30.00%
	PFDA	5.00	4.74	94.9	ng/mL	+/- 30.00%
	PFUnA	5.00	4.61	92.3	ng/mL	+/- 30.00%
	PFDOA	5.00	4.93	98.7	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.19	83.8	ng/mL	+/- 30.00%
	PFTEDA	5.00	4.85	97.0	ng/mL	+/- 30.00%
	PFBS	4.42	4.71	107	ng/mL	+/- 30.00%
	PFPES	4.70	4.49	95.4	ng/mL	+/- 30.00%
	PFHXS	4.58	4.46	97.4	ng/mL	+/- 30.00%
	PFHPS	4.78	5.15	108	ng/mL	+/- 30.00%
	PFOS	4.65	4.43	95.3	ng/mL	+/- 30.00%
	PFNS	4.80	4.87	101	ng/mL	+/- 30.00%
	PFDS	4.82	4.73	98.2	ng/mL	+/- 30.00%
	PFDOS	4.85	5.55	114	ng/mL	+/- 30.00%
	4:2FTS	18.8	19.1	102	ng/mL	+/- 30.00%
	6:2FTS	19.0	17.4	91.8	ng/mL	+/- 30.00%
	8:2FTS	19.2	19.1	99.5	ng/mL	+/- 30.00%
	PFOSA	5.00	5.32	106	ng/mL	+/- 30.00%
	NMeFOSA	20.0	21.7	109	ng/mL	+/- 30.00%
	NEtFOSA	20.0	21.4	107	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	5.32	106	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	4.61	92.2	ng/mL	+/- 30.00%
	NMeFOSE	20.0	21.4	107	ng/mL	+/- 30.00%
	NEtFOSE	20.0	20.6	103	ng/mL	+/- 30.00%
	HFPO-DA	10.0	9.69	96.9	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0134
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2252011
Standard ID:	22L0304	Sequence:	SB03951

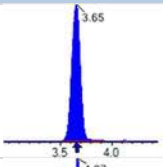
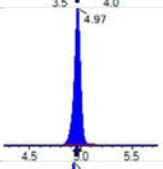
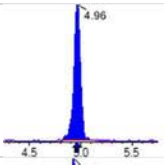
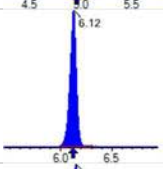
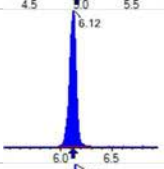
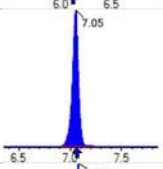
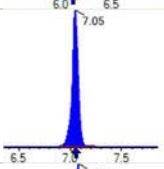
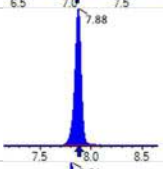
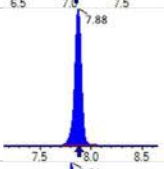
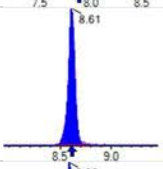
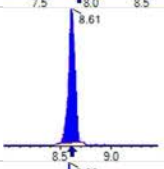
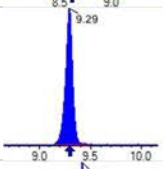
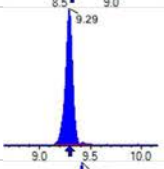
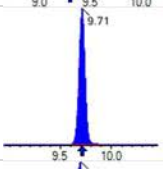
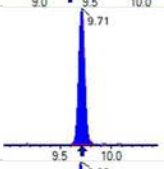
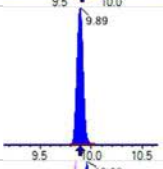
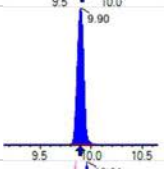
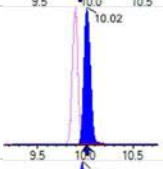
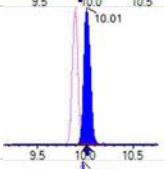
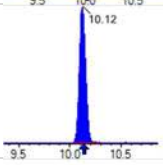
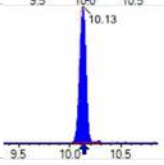
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SB03951-CCV1	ADONA	9.45	9.03	95.5	ng/mL	+/- 30.00%
	PFEESA	8.90	8.98	101	ng/mL	+/- 30.00%
	PFMPA	10.0	10.5	105	ng/mL	+/- 30.00%
	PFMBA	10.0	10.0	100	ng/mL	+/- 30.00%
	NFDHA	10.0	11.3	113	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	8.53	91.2	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	8.36	88.5	ng/mL	+/- 30.00%
	3:3FTCA	20.0	21.4	107	ng/mL	+/- 30.00%
	5:3FTCA	20.0	19.2	96.0	ng/mL	+/- 30.00%
	7:3FTCA	20.0	22.4	112	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (3)
Acquired: 2022/12/22 - 11:26

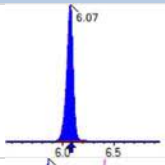
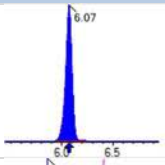
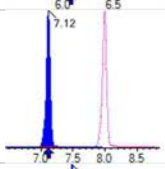
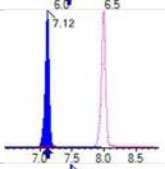
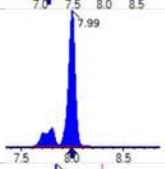
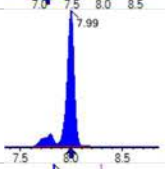
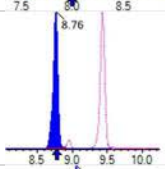
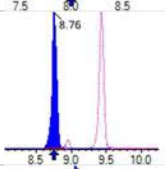
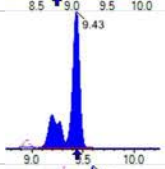
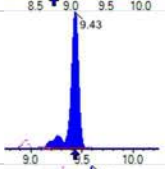
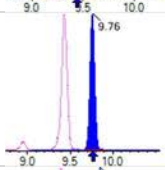
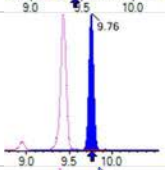
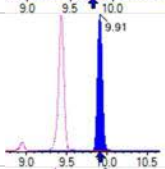
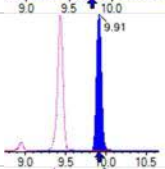
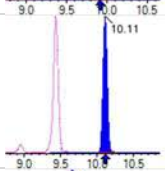
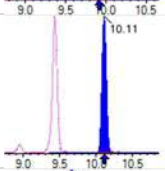
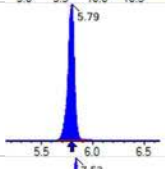
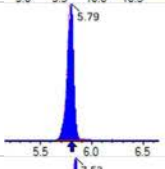
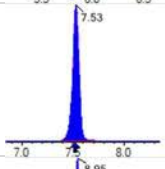
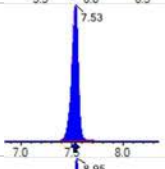
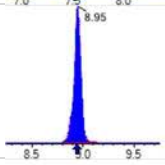
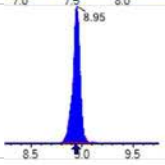
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 2154129	(3.65 , 1.00) (0.00 , N/A , 0.0)	64.9	N/A 0.0 0.0	21.0367 [20.0000]	105.2%			
PFPeA	(262.9 / 219.0) 1554031 (262.9 / 69.0) 16157	(4.97 , 1.00) (0.00 , N/A , 0.2)	683.0 222.9	0.0104 92.9 100.0	10.4106 [10.0000]	104.1%			
PFHxA	(313.0 / 269.0) 1175354 (313.0 / 119.0) 105025	(6.12 , 1.00) (0.00 , N/A , 0.3)	562.2 479.3	0.0894 91.4 100.0	5.1058 [5.0000]	102.1%			
PFHpA	(363.0 / 319.0) 1048582 (363.0 / 169.0) 323239	(7.05 , 1.00) (0.00 , N/A , 0.2)	690.7 564.0	0.3083 99.0 100.0	5.1153 [5.0000]	102.3%			
PFOA	(413.0 / 369.0) 1291864 (413.0 / 169.0) 382216	(7.88 , 1.00) (0.00 , N/A , 0.0)	788.3 627.4	0.2959 90.5 100.0	4.4112 [5.0000]	88.2%			
PFNA	(463.0 / 419.0) 972648 (463.0 / 169.0) 202653	(8.61 , 1.00) (0.00 , N/A , -0.1)	482.3 137.7	0.2084 108.1 100.0	4.8916 [5.0000]	97.8%			
PFDA	(513.0 / 469.0) 1242523 (513.0 / 169.0) 122058	(9.29 , 1.00) (0.00 , N/A , 0.0)	537.9 297.6	0.0982 102.8 100.0	4.7434 [5.0000]	94.9%			
PFUnA	(563.0 / 519.0) 1356919 (563.0 / 169.0) 121676	(9.71 , 1.00) (0.00 , N/A , 0.3)	795.6 343.8	0.0897 103.3 100.0	4.6144 [5.0000]	92.3%			
PFDoA	(613.0 / 569.0) 1558339 (613.0 / 169.0) 204949	(9.89 , 1.00) (0.00 , N/A , -0.4)	763.3 482.7	0.1315 94.5 100.0	4.9347 [5.0000]	98.7%			
PFTrDA	(663.0 / 619.0) 1146816 (663.0 / 169.0) 262166	(10.02 , 1.01) (N/A , 0.00 , 0.1)	754.3 589.3	0.2286 111.7 100.0	4.1915 [5.0000]	83.8%			
PFTeDA	(713.0 / 669.0) 1097292 (713.0 / 169.0) 225203	(10.12 , 1.00) (0.00 , N/A , -0.4)	778.9 510.8	0.2052 100.9 100.0	4.8503 [5.0000]	97.0%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (3)
Acquired: 2022/12/22 - 11:26

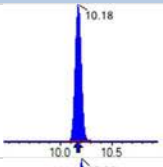
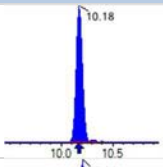
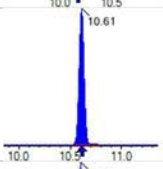
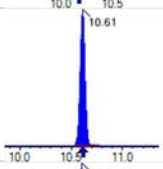
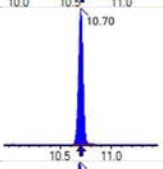
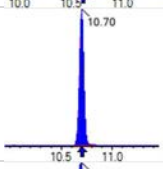
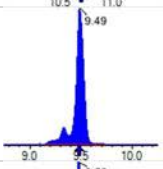
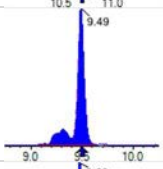
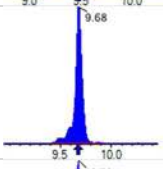
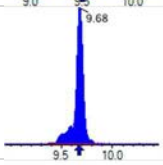
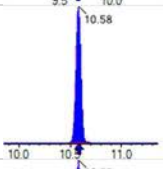
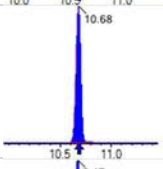
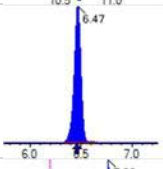
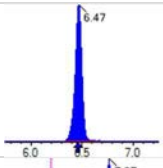
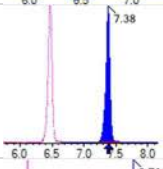
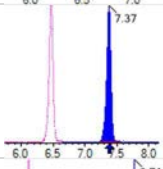
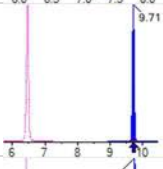
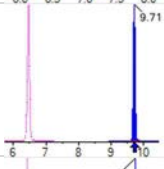
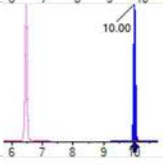
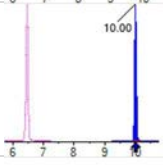
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 1719634 (298.9 / 99.0) 1126162	(6.07 , 1.00) (0.00 , N/A , 0.1)	661.5 702.7	0.6549 106.4 100.0	4.7073 [4.4237]	106.4%			
PFPeS	(349.0 / 80.0) 3076212 (349.0 / 99.0) 1181734	(7.12 , 0.89) (N/A , 0.00 , 0.0)	784.8 967.1	0.3842 107.9 100.0	4.4854 [4.6919]	95.6%			
PFHxS	(399.0 / 80.0) 2661196 (399.0 / 99.0) 880872	(7.99 , 1.00) (0.00 , N/A , 0.1)	2961.8 13543.7	0.3310 98.5 100.0	4.4618 [4.5549]	98.0%			
PFHpS	(449.0 / 80.0) 2510606 (449.0 / 99.0) 638303	(8.76 , 0.93) (N/A , 0.00 , 0.3)	690.2 645.6	0.2542 92.9 100.0	5.1514 [4.7570]	108.3%			
PFOS	(499.0 / 80.0) 2685738 (499.0 / 99.0) 614269	(9.43 , 1.00) (0.00 , N/A , 0.0)	93.8 145.8	0.2287 94.0 100.0	4.4299 [4.6375]	95.5%			
PFNS	(549.0 / 80.0) 3272209 (549.0 / 99.0) 835098	(9.76 , 1.03) (N/A , 0.00 , 0.0)	766.3 864.1	0.2552 104.6 100.0	4.8654 [4.7994]	101.4%			
PFDS	(599.0 / 80.0) 3533112 (599.0 / 99.0) 826737	(9.91 , 1.05) (N/A , 0.00 , -0.1)	938.8 1176.9	0.2340 104.0 100.0	4.7321 [4.8155]	98.3%			
PFDoS	(698.9 / 80.0) 1732426 (698.9 / 99.0) 336296	(10.11 , 1.07) (N/A , 0.00 , 0.0)	1430.4 1036.4	0.1941 79.3 100.0	5.5516 [4.8478]	114.5%			
4:2FTS	(327.0 / 307.0) 3560853 (327.0 / 81.0) 2038787	(5.79 , 1.00) (0.00 , N/A , -0.1)	728.9 733.2	0.5726 115.9 100.0	19.1366 [18.6906]	102.4%			
6:2FTS	(427.0 / 407.0) 2253960 (427.0 / 81.0) 1571501	(7.53 , 1.00) (0.00 , N/A , -0.2)	722.9 646.0	0.6972 89.6 100.0	17.4345 [18.9808]	91.9%			
8:2FTS	(527.0 / 507.0) 2389487 (527.0 / 81.0) 1315672	(8.95 , 1.00) (0.00 , N/A , -0.1)	525.5 684.3	0.5506 97.3 100.0	19.0958 [19.1658]	99.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (3)
Acquired: 2022/12/22 - 11:26

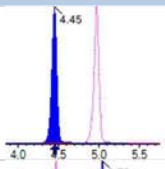
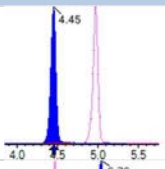
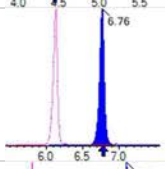
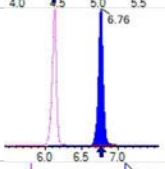
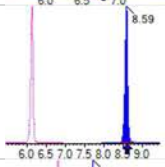
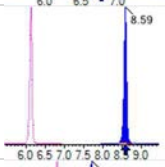
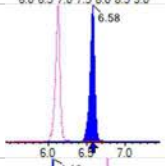
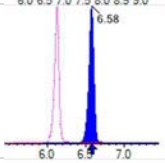
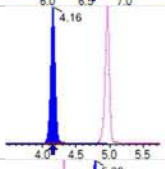
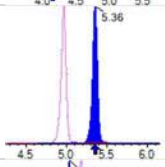
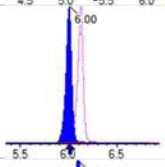
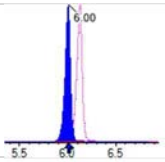
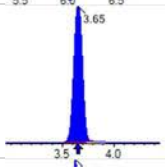
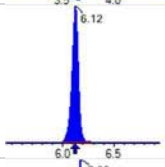
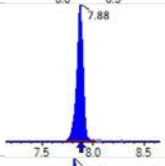
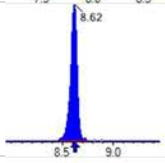
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 3428117 (498.0 / 478.0) 83154	(10.18 , 1.00) (0.00 , N/A , 0.0)	763.2 679.7	0.0243 116.4 100.0	5.3181 [5.0000]	106.4%			
NMeFOSA	(511.9 / 219.0) 2543194 (511.9 / 169.0) 1719715	(10.61 , 1.00) (0.00 , N/A , 0.0)	1285.6 1114.3	0.6762 93.9 100.0	21.7307 [20.0000]	108.7%			
NEtFOSA	(526.0 / 219.0) 2929342 (526.0 / 169.0) 3106262	(10.70 , 1.00) (0.00 , N/A , 0.1)	1455.2 1391.4	1.0604 100.3 100.0	21.3735 [20.0000]	106.9%			
NMeFOSAA	(570.0 / 419.0) 547786 (570.0 / 483.0) 273872	(9.49 , 1.00) (0.00 , N/A , 0.1)	449.1 332.1	0.5000 81.3 100.0	5.3192 [5.0000]	106.4%			
NEtFOSAA	(584.0 / 419.0) 429443 (584.0 / 526.0) 312027	(9.68 , 1.00) (0.00 , N/A , 0.0)	783.8 831.4	0.7266 99.1 100.0	4.6112 [5.0000]	92.2%			
NMeFOSE	(616.1 / 59.0) 588115	(10.58 , 1.00) (0.01 , N/A , 0.0)	930.0	N/A 0.0 0.0	21.4368 [20.0000]	107.2%			
NEtFOSE	(630.0 / 59.0) 104293	(10.68 , 1.00) (0.01 , N/A , 0.0)	1039.0	N/A 0.0 0.0	20.5599 [20.0000]	102.8%			
HFPO-DA	(285.0 / 169.0) 896427 (285.0 / 185.0) 2332694	(6.47 , 1.00) (0.00 , N/A , 0.0)	820.4 784.6	2.6022 94.8 100.0	9.6929 [10.0000]	96.9%			
ADONA	(377.0 / 85.0) 3708989 (377.0 / 251.0) 473572	(7.38 , 1.14) (N/A , 0.00 , 0.1)	717.9 589.3	0.1277 102.5 100.0	9.0292 [9.4270]	95.8%			
9Cl-Pf3ONS	(531.0 / 351.0) 9542968 (533.0 / 353.0) 2769472	(9.71 , 1.50) (N/A , 0.00 , 0.1)	841.1 822.2	0.2902 98.1 100.0	8.5279 [9.3325]	91.4%			
11Cl-PF3OUDS	(631.0 / 451.0) 4800455 (633.0 / 453.0) 1542741	(10.00 , 1.55) (N/A , 0.00 , 0.3)	681.4 800.2	0.3214 97.1 100.0	8.3612 [9.4321]	88.6%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (3)
Acquired: 2022/12/22 - 11:26

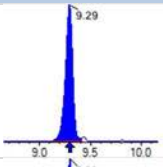
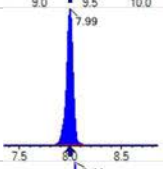
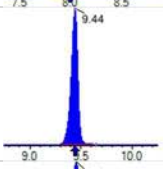
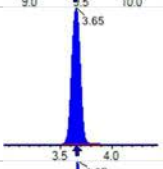
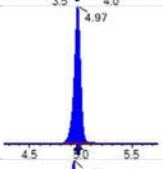
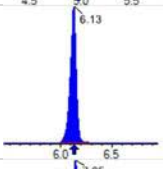
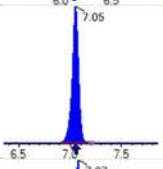
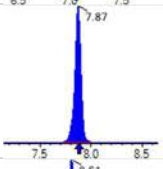
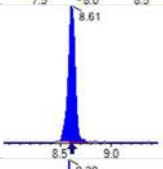
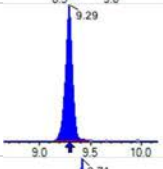
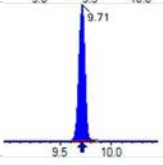
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 110439 (241.0 / 117.0) 185455	(4.45 , 0.89) (N/A , 0.00 , -0.1)	609.5 582.5	1.6793 100.3 100.0	21.4369 [20.0000]	107.2%			
5:3FTCA	(341.0 / 236.7) 781378 (341.0 / 217.0) 1255633	(6.76 , 1.10) (N/A , 0.00 , 0.2)	641.9 545.8	1.6069 109.8 100.0	19.2098 [20.0000]	96.0%			
7:3FTCA	(441.0 / 317.0) 1048539 (441.0 / 337.0) 874782	(8.59 , 1.40) (N/A , 0.00 , 0.0)	437.2 460.1	0.8343 99.6 100.0	22.4032 [20.0000]	112.0%			
PFEESA	(315.0 / 135.0) 2262176 (315.0 / 83.0) 668430	(6.58 , 1.07) (N/A , 0.00 , 0.0)	842.5 781.6	0.2955 96.2 100.0	8.9758 [8.9246]	100.6%			
PFMPA	(229.0 / 85.0) 431797	(4.16 , 0.84) (N/A , 0.00 , 0.0)	1012.2	N/A 0.0 0.0	10.5396 [10.0000]	105.4%			
PFMBA	(279.0 / 85.0) 1417072	(5.36 , 1.08) (N/A , 0.00 , 0.0)	947.1	N/A 0.0 0.0	10.0069 [10.0000]	100.1%			
NFDHA	(295.0 / 201.0) 1316880 (295.0 / 85.0) 1153530	(6.00 , 0.98) (N/A , 0.00 , 0.0)	700.7 1120.2	0.8760 99.2 100.0	11.3450 [10.0000]	113.5%			
13C3_PFBA_IIS	(216.0 / 172.0) 157058	(3.65 , N/A) (N/A , 0.00 , N/A)	654.7	N/A	1.1283 [1.0000]	112.8% { 100.0% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 235960	(6.12 , N/A) (N/A , 0.00 , N/A)	572.0	N/A	1.0218 [1.0000]	102.2% { 100.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 256865	(7.88 , N/A) (N/A , 0.00 , N/A)	493.1	N/A	1.1684 [1.0000]	116.8% { 100.0% }			
13C5_PFNA_IIS	(468.0 / 423.0) 234538	(8.62 , N/A) (N/A , 0.00 , N/A)	305.4	N/A	1.2665 [1.0000]	126.7% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (3)
Acquired: 2022/12/22 - 11:26

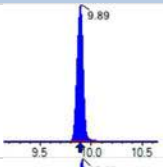
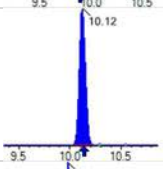
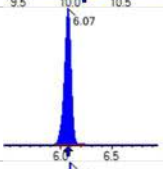
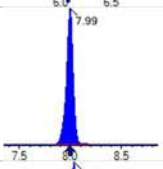
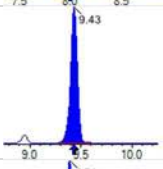
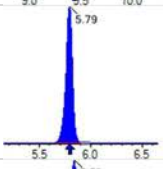
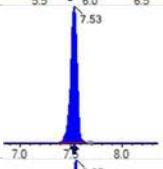
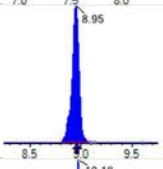
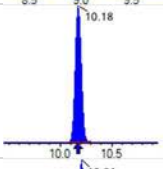
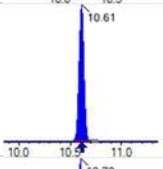
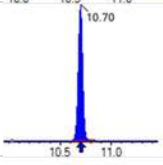
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 187181	(9.29 , N/A) (N/A , 0.00 , N/A)	349.6	N/A	1.0128 [1.0000]	101.3% { 100.0% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 446223	(7.99 , N/A) (N/A , 0.00 , N/A)	1026.4	N/A	1.1053 [1.0000]	110.5% { 100.0% }			
13C4_PFOS_IIS	(502.8 / 79.9) 346561	(9.44 , N/A) (N/A , 0.00 , N/A)	424.1	N/A	1.0858 [1.0000]	108.6% { 100.0% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1255682	(3.65 , N/A) (N/A , 0.00 , N/A)	744.1	N/A	7.7681 [8.0000]	97.1% { 100.0% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 679867	(4.97 , N/A) (N/A , 0.00 , N/A)	654.2	N/A	4.1410 [4.0000]	103.5% { 100.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 536085	(6.13 , N/A) (N/A , 0.00 , N/A)	604.6	N/A	1.9743 [2.0000]	98.7% { 100.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 449767	(7.05 , N/A) (N/A , 0.00 , N/A)	519.7	N/A	1.8987 [2.0000]	94.9% { 100.0% }			
13C8_PFOA_EIS	(421.0 / 376.0) 595626	(7.87 , N/A) (N/A , 0.00 , N/A)	933.6	N/A	2.1144 [2.0000]	105.7% { 100.0% }			
13C9_PFNA_EIS	(472.0 / 427.0) 231730	(8.61 , N/A) (N/A , 0.00 , N/A)	407.0	N/A	0.8985 [1.0000]	89.9% { 100.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 275199	(9.29 , N/A) (N/A , 0.00 , N/A)	338.1	N/A	1.0337 [1.0000]	103.4% { 100.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 372096	(9.71 , N/A) (N/A , 0.00 , N/A)	452.0	N/A	0.9827 [1.0000]	98.3% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (3)
Acquired: 2022/12/22 - 11:26

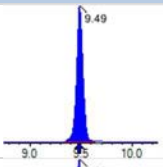
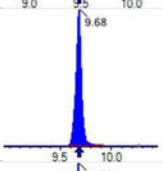
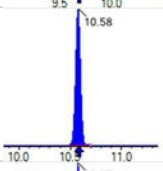
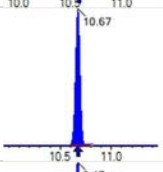
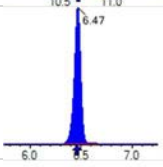
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 366314	(9.89 , N/A) (N/A , 0.00 , N/A)	634.0	N/A	0.9692 [1.0000]	96.9% { 100.0% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 255262	(10.12 , N/A) (N/A , 0.00 , N/A)	364.1	N/A	1.0170 [1.0000]	101.7% { 100.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1332644	(6.07 , N/A) (N/A , 0.00 , N/A)	646.0	N/A	1.7664 [2.0000]	88.3% { 100.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 767810	(7.99 , N/A) (N/A , 0.00 , N/A)	714.1	N/A	1.9127 [2.0000]	95.6% { 100.0% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1117104	(9.43 , N/A) (N/A , 0.00 , N/A)	237.3	N/A	1.8782 [2.0000]	93.9% { 100.0% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 225103	(5.79 , N/A) (N/A , 0.00 , N/A)	498.3	N/A	3.5227 [4.0000]	88.1% { 100.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 336334	(7.53 , N/A) (N/A , 0.00 , N/A)	641.8	N/A	4.3717 [4.0000]	109.3% { 100.0% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 315927	(8.95 , N/A) (N/A , 0.00 , N/A)	416.9	N/A	4.1022 [4.0000]	102.6% { 100.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1364137	(10.18 , N/A) (N/A , 0.00 , N/A)	750.8	N/A	1.8144 [2.0000]	90.7% { 100.0% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 287141	(10.61 , N/A) (N/A , 0.00 , N/A)	1425.3	N/A	1.7492 [2.0000]	87.5% { 100.0% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 303885	(10.70 , N/A) (N/A , 0.00 , N/A)	1191.4	N/A	2.0054 [2.0000]	100.3% { 100.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (3)
Acquired: 2022/12/22 - 11:26

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 528609	(9.49 , N/A) (N/A , 0.00 , N/A)	496.4	N/A	3.7375 [4.0000]	93.4% { 100.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 414934	(9.68 , N/A) (N/A , 0.00 , N/A)	361.3	N/A	3.3284 [4.0000]	83.2% { 100.0% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 434712	(10.58 , N/A) (N/A , 0.00 , N/A)	1025.6	N/A	18.8600 [20.0000]	94.3% { 100.0% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 198139	(10.67 , N/A) (N/A , 0.00 , N/A)	1023.3	N/A	18.8825 [20.0000]	94.4% { 100.0% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1217258	(6.47 , N/A) (N/A , 0.00 , N/A)	619.0	N/A	8.4316 [8.0000]	105.4% { 100.0% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0134
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2252011
Standard ID:	22L0304	Sequence:	SB03951

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SB03951-CCV2	PFBA	20.0	20.3	102	ng/mL	+/- 30.00%
	PFPEA	10.0	9.58	95.8	ng/mL	+/- 30.00%
	PFHXA	5.00	5.39	108	ng/mL	+/- 30.00%
	PFHPA	5.00	4.94	98.9	ng/mL	+/- 30.00%
	PFOA	5.00	4.83	96.6	ng/mL	+/- 30.00%
	PFNA	5.00	5.04	101	ng/mL	+/- 30.00%
	PFDA	5.00	4.71	94.2	ng/mL	+/- 30.00%
	PFUnA	5.00	5.41	108	ng/mL	+/- 30.00%
	PFDOA	5.00	5.49	110	ng/mL	+/- 30.00%
	PFTRDA	5.00	5.21	104	ng/mL	+/- 30.00%
	PFTEDA	5.00	4.27	85.4	ng/mL	+/- 30.00%
	PFBS	4.42	4.32	97.7	ng/mL	+/- 30.00%
	PFPES	4.70	5.03	107	ng/mL	+/- 30.00%
	PFHXS	4.58	4.51	98.5	ng/mL	+/- 30.00%
	PFHPS	4.78	4.28	89.6	ng/mL	+/- 30.00%
	PFOS	4.65	4.47	96.1	ng/mL	+/- 30.00%
	PFNS	4.80	4.39	91.5	ng/mL	+/- 30.00%
	PFDS	4.82	4.42	91.6	ng/mL	+/- 30.00%
	PFDOS	4.85	4.71	97.1	ng/mL	+/- 30.00%
	4:2FTS	18.8	20.7	110	ng/mL	+/- 30.00%
	6:2FTS	19.0	18.8	98.8	ng/mL	+/- 30.00%
	8:2FTS	19.2	18.7	97.2	ng/mL	+/- 30.00%
	PFOSA	5.00	5.73	115	ng/mL	+/- 30.00%
	NMeFOSA	20.0	20.1	101	ng/mL	+/- 30.00%
	NEtFOSA	20.0	21.1	106	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	5.85	117	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	4.92	98.4	ng/mL	+/- 30.00%
	NMeFOSE	20.0	19.4	96.8	ng/mL	+/- 30.00%
	NEtFOSE	20.0	18.5	92.4	ng/mL	+/- 30.00%
	HFPO-DA	10.0	9.87	98.7	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0134
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2252011
Standard ID:	22L0304	Sequence:	SB03951

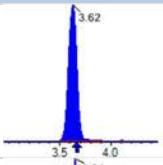
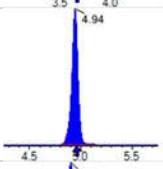
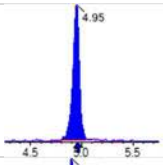
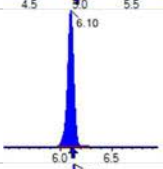
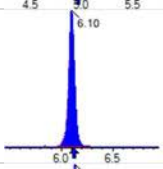
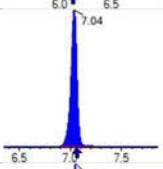
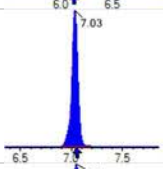
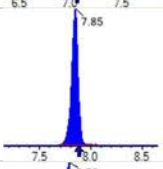
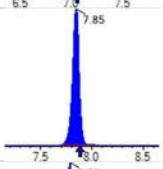
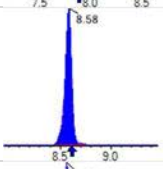
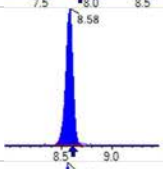
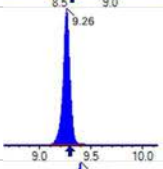
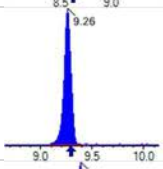
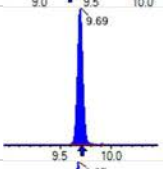
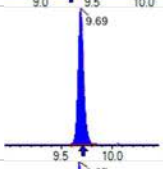
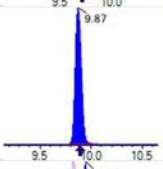
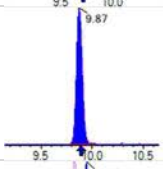
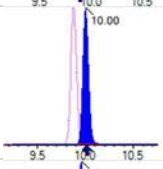
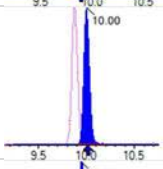
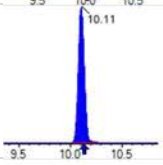
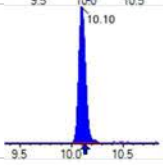
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SB03951-CCV2	ADONA	9.45	9.04	95.6	ng/mL	+/- 30.00%
	PFEESA	8.90	9.16	103	ng/mL	+/- 30.00%
	PFMPA	10.0	10.5	105	ng/mL	+/- 30.00%
	PFMBA	10.0	9.84	98.4	ng/mL	+/- 30.00%
	NFDHA	10.0	11.5	115	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	8.42	90.0	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	9.60	102	ng/mL	+/- 30.00%
	3:3FTCA	20.0	23.2	116	ng/mL	+/- 30.00%
	5:3FTCA	20.0	22.3	111	ng/mL	+/- 30.00%
	7:3FTCA	20.0	23.2	116	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (16)
Acquired: 2022/12/22 - 14:37

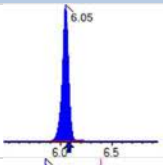
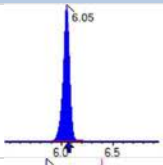
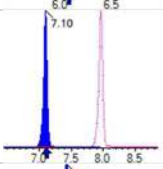
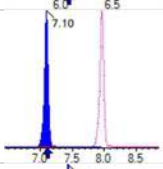
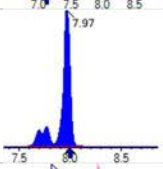
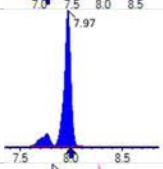
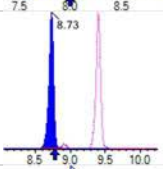
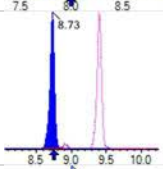
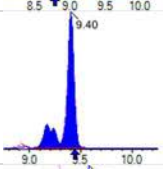
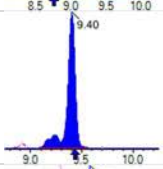
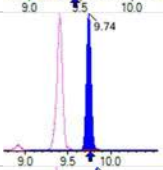
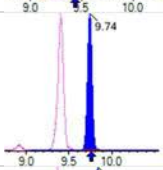
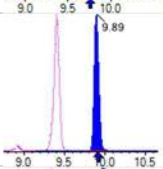
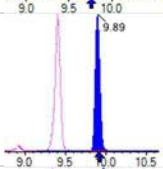
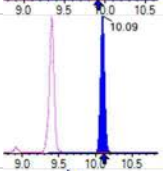
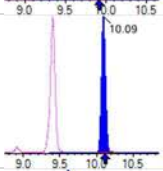
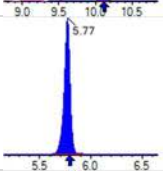
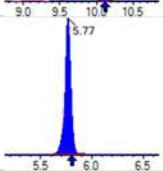
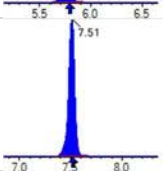
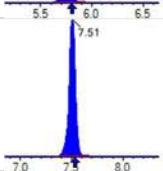
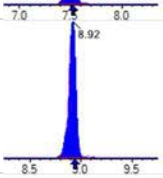
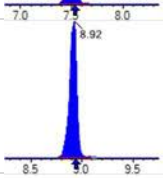
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 2353894	(3.62 , 1.00) (0.00 , N/A , 0.0)	66.6	N/A 0.0 0.0	20.3367 [20.0000]	101.7%			
PFPeA	(262.9 / 219.0) 1542175 (262.9 / 69.0) 15598	(4.94 , 1.00) (0.00 , N/A , -0.2)	723.3 241.1	0.0101 90.4 97.3	9.5756 [10.0000]	95.8%			
PFHxA	(313.0 / 269.0) 1279127 (313.0 / 119.0) 120390	(6.10 , 1.00) (0.00 , N/A , 0.0)	718.2 449.1	0.0941 96.3 105.3	5.3946 [5.0000]	107.9%			
PFHpA	(363.0 / 319.0) 1207342 (363.0 / 169.0) 341501	(7.04 , 1.00) (0.01 , N/A , 0.1)	655.5 649.4	0.2829 90.8 91.8	4.9444 [5.0000]	98.9%			
PFOA	(413.0 / 369.0) 1339728 (413.0 / 169.0) 423939	(7.85 , 1.00) (0.00 , N/A , 0.0)	817.0 676.4	0.3164 96.8 107.0	4.8318 [5.0000]	96.6%			
PFNA	(463.0 / 419.0) 940243 (463.0 / 169.0) 218020	(8.58 , 1.00) (0.00 , N/A , 0.0)	626.5 97.0	0.2319 120.3 111.3	5.0405 [5.0000]	100.8%			
PFDA	(513.0 / 469.0) 1286654 (513.0 / 169.0) 131797	(9.26 , 1.00) (0.00 , N/A , 0.0)	542.9 356.7	0.1024 107.2 104.3	4.7087 [5.0000]	94.2%			
PFUnA	(563.0 / 519.0) 1518770 (563.0 / 169.0) 153517	(9.69 , 1.00) (0.00 , N/A , 0.2)	566.6 350.1	0.1011 116.4 112.7	5.4097 [5.0000]	108.2%			
PFDoA	(613.0 / 569.0) 1810490 (613.0 / 169.0) 207740	(9.87 , 1.00) (0.00 , N/A , 0.0)	615.8 426.5	0.1147 82.4 87.2	5.4868 [5.0000]	109.7%			
PFTrDA	(663.0 / 619.0) 1489270 (663.0 / 169.0) 271591	(10.00 , 1.01) (N/A , -0.01 , 0.1)	800.5 488.8	0.1824 89.1 79.8	5.2093 [5.0000]	104.2%			
PFTeDA	(713.0 / 669.0) 1137436 (713.0 / 169.0) 167389	(10.11 , 1.00) (0.00 , N/A , 0.2)	909.7 267.9	0.1472 72.4 71.7	4.2692 [5.0000]	85.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (16)
Acquired: 2022/12/22 - 14:37

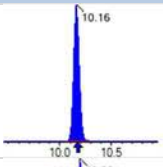
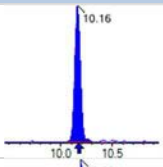
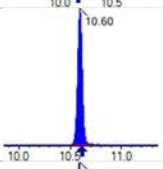
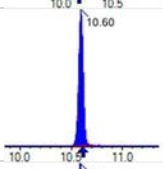
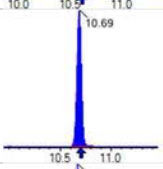
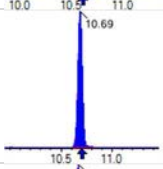
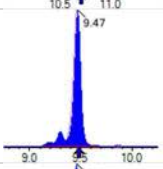
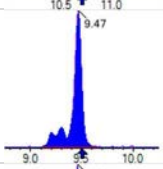
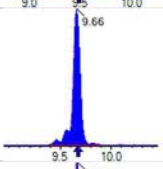
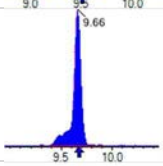
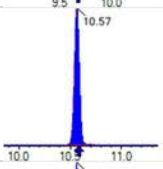
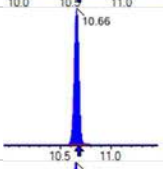
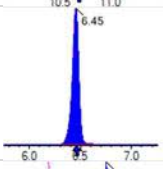
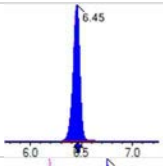
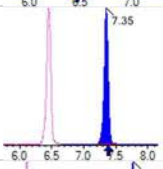
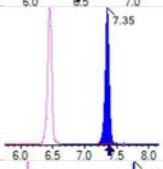
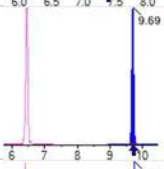
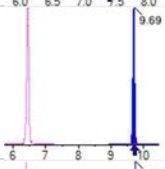
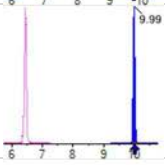
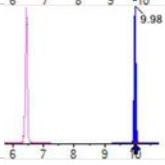
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 1774945 (298.9 / 99.0) 1098290	(6.05 , 1.00) (0.00 , N/A , 0.0)	575.2 674.9	0.6188 100.5 94.5	4.3167 [4.4237]	97.6%			
PFPeS	(349.0 / 80.0) 3514660 (349.0 / 99.0) 1261990	(7.10 , 0.89) (N/A , -0.02 , 0.1)	842.9 713.8	0.3591 100.9 93.5	5.0307 [4.6919]	107.2%			
PFHxS	(399.0 / 80.0) 2741271 (399.0 / 99.0) 932563	(7.97 , 1.00) (0.00 , N/A , 0.1)	2993.3 17173.0	0.3402 101.2 102.8	4.5118 [4.5549]	99.1%			
PFHpS	(449.0 / 80.0) 2390966 (449.0 / 99.0) 712726	(8.73 , 0.93) (N/A , -0.03 , 0.1)	612.2 635.6	0.2981 108.9 117.2	4.2843 [4.7570]	90.1%			
PFOS	(499.0 / 80.0) 3102735 (499.0 / 99.0) 654418	(9.40 , 1.00) (0.00 , N/A , 0.0)	103.6 121.8	0.2109 86.7 92.2	4.4693 [4.6375]	96.4%			
PFNS	(549.0 / 80.0) 3383274 (549.0 / 99.0) 911710	(9.74 , 1.04) (N/A , -0.02 , 0.0)	862.5 933.5	0.2695 110.4 105.6	4.3931 [4.7994]	91.5%			
PFDS	(599.0 / 80.0) 3776713 (599.0 / 99.0) 913382	(9.89 , 1.05) (N/A , -0.02 , -0.1)	1018.9 546.5	0.2418 107.4 103.4	4.4174 [4.8155]	91.7%			
PFDoS	(698.9 / 80.0) 1682735 (698.9 / 99.0) 358973	(10.09 , 1.07) (N/A , -0.01 , 0.1)	1168.6 610.5	0.2133 87.2 109.9	4.7091 [4.8478]	97.1%			
4:2FTS	(327.0 / 307.0) 3805750 (327.0 / 81.0) 1988641	(5.77 , 1.00) (0.00 , N/A , 0.2)	820.6 732.9	0.5225 105.8 91.3	20.6590 [18.6906]	110.5%			
6:2FTS	(427.0 / 407.0) 2411225 (427.0 / 81.0) 1781168	(7.51 , 1.00) (0.00 , N/A , 0.3)	944.6 859.2	0.7387 94.9 105.9	18.7649 [18.9808]	98.9%			
8:2FTS	(527.0 / 507.0) 2054619 (527.0 / 81.0) 1183564	(8.92 , 1.00) (0.00 , N/A , 0.1)	555.5 395.1	0.5761 101.8 104.6	18.6579 [19.1658]	97.4%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (16)
Acquired: 2022/12/22 - 14:37

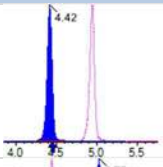
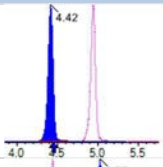
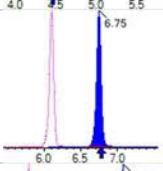
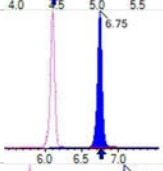
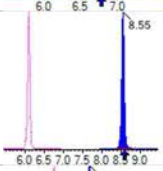
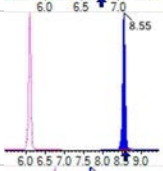
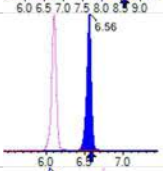
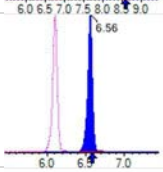
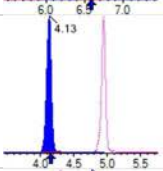
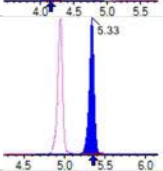
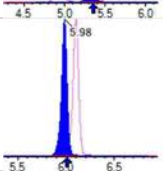
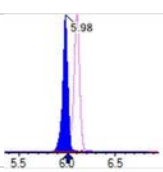
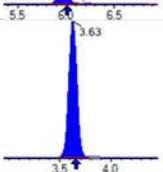
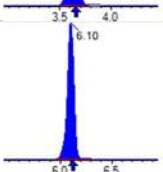
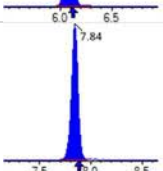
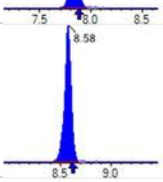
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 4093972 (498.0 / 478.0) 71584	(10.16 , 1.00) (0.00 , N/A , -0.1)	958.5 295.3	0.0175 83.9 72.1	5.7294 [5.0000]	114.6%			
NMeFOSA	(511.9 / 219.0) 2655774 (511.9 / 169.0) 1911600	(10.60 , 1.00) (0.00 , N/A , 0.0)	990.5 978.3	0.7198 99.9 106.4	20.1100 [20.0000]	100.6%			
NEtFOSA	(526.0 / 219.0) 2788650 (526.0 / 169.0) 2942224	(10.69 , 1.00) (0.00 , N/A , 0.0)	1409.4 1627.5	1.0551 99.8 99.5	21.1104 [20.0000]	105.6%			
NMeFOSAA	(570.0 / 419.0) 522530 (570.0 / 483.0) 290563	(9.47 , 1.00) (0.01 , N/A , 0.2)	474.4 353.5	0.5561 90.5 111.2	5.8470 [5.0000]	116.9%			
NEtFOSAA	(584.0 / 419.0) 484480 (584.0 / 526.0) 318236	(9.66 , 1.00) (0.01 , N/A , 0.0)	666.2 23248.7	0.6569 89.6 90.4	4.9198 [5.0000]	98.4%			
NMeFOSE	(616.1 / 59.0) 617715	(10.57 , 1.00) (0.01 , N/A , 0.0)	913.0	N/A 0.0 0.0	19.3557 [20.0000]	96.8%			
NEtFOSE	(630.0 / 59.0) 109538	(10.66 , 1.00) (0.01 , N/A , 0.0)	1164.1	N/A 0.0 0.0	18.4772 [20.0000]	92.4%			
HFPO-DA	(285.0 / 169.0) 947231 (285.0 / 185.0) 2579833	(6.45 , 1.00) (0.00 , N/A , 0.1)	723.0 660.4	2.7236 99.2 104.7	9.8671 [10.0000]	98.7%			
ADONA	(377.0 / 85.0) 3852795 (377.0 / 251.0) 488034	(7.35 , 1.14) (N/A , -0.03 , 0.0)	822.2 608.5	0.1267 101.7 99.2	9.0357 [9.4270]	95.8%			
9Cl-Pf3ONS	(531.0 / 351.0) 9783701 (533.0 / 353.0) 3295968	(9.69 , 1.50) (N/A , -0.01 , 0.0)	853.8 692.2	0.3369 113.8 116.1	8.4191 [9.3325]	90.2%			
11Cl-PF3OUDS	(631.0 / 451.0) 5722418 (633.0 / 453.0) 1886170	(9.99 , 1.55) (N/A , -0.02 , 0.1)	1202.3 1345.8	0.3296 99.6 102.6	9.6020 [9.4321]	101.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (16)
Acquired: 2022/12/22 - 14:37

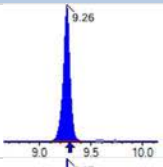
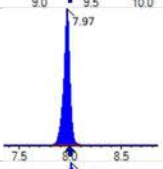
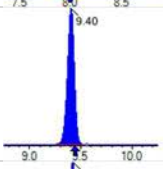
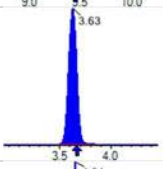
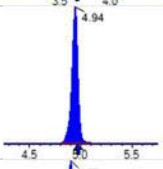
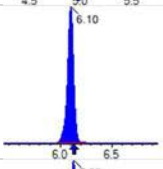
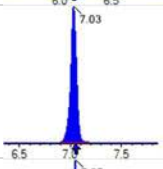
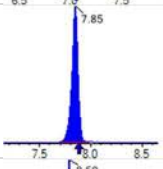
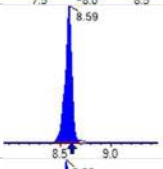
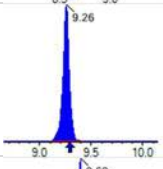
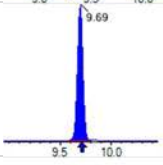
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 129146 (241.0 / 117.0) 200477	(4.42 , 0.89) (N/A , -0.03 , 0.0)	697.6 492.6	1.5523 92.8 92.4	23.2348 [20.0000]	116.2%			
5:3FTCA	(341.0 / 236.7) 932913 (341.0 / 217.0) 1418978	(6.75 , 1.11) (N/A , -0.02 , 0.0)	646.6 613.3	1.5210 103.9 94.7	22.2668 [20.0000]	111.3%			
7:3FTCA	(441.0 / 317.0) 1119323 (441.0 / 337.0) 879582	(8.55 , 1.40) (N/A , -0.03 , 0.0)	503.9 478.8	0.7858 93.8 94.2	23.2186 [20.0000]	116.1%			
PFEESA	(315.0 / 135.0) 2376917 (315.0 / 83.0) 710002	(6.56 , 1.07) (N/A , -0.02 , -0.1)	651.4 660.6	0.2987 97.3 101.1	9.1562 [8.9246]	102.6%			
PFMPA	(229.0 / 85.0) 465746	(4.13 , 0.83) (N/A , -0.03 , 0.0)	792.9	N/A 0.0 0.0	10.5368 [10.0000]	105.4%			
PFMBA	(279.0 / 85.0) 1503254	(5.33 , 1.08) (N/A , -0.02 , 0.0)	731.2	N/A 0.0 0.0	9.8392 [10.0000]	98.4%			
NFDHA	(295.0 / 201.0) 1375282 (295.0 / 85.0) 1242998	(5.98 , 0.98) (N/A , -0.02 , 0.0)	863.9 1184.5	0.9038 102.4 103.2	11.5029 [10.0000]	115.0%			
13C3_PFBA_IIS	(216.0 / 172.0) 170602	(3.63 , N/A) (N/A , -0.03 , N/A)	612.3	N/A	1.2256 [1.0000]	122.6% { 108.6% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 260602	(6.10 , N/A) (N/A , -0.02 , N/A)	587.7	N/A	1.1285 [1.0000]	112.9% { 110.4% }			
13C4_PFOA_IIS	(417.0 / 372.0) 262468	(7.84 , N/A) (N/A , -0.03 , N/A)	511.9	N/A	1.1939 [1.0000]	119.4% { 102.2% }			
13C5_PFNA_IIS	(468.0 / 423.0) 227138	(8.58 , N/A) (N/A , -0.04 , N/A)	400.2	N/A	1.2266 [1.0000]	122.7% { 96.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (16)
Acquired: 2022/12/22 - 14:37

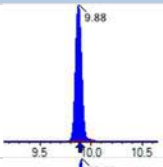
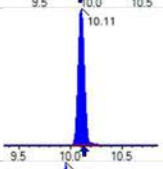
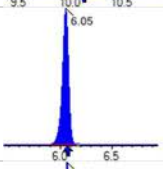
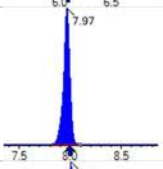
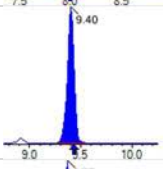
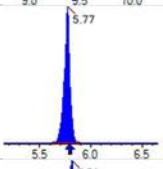
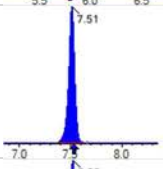
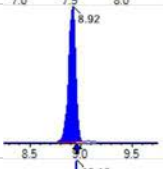
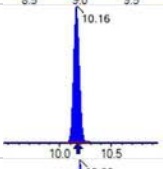
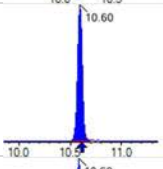
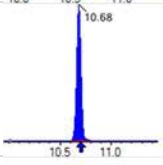
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 221652	(9.26 , N/A) (N/A , -0.03 , N/A)	364.0	N/A	1.1994 [1.0000]	119.9% { 118.4% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 480320	(7.97 , N/A) (N/A , -0.03 , N/A)	1068.4	N/A	1.1898 [1.0000]	119.0% { 107.6% }			
13C4_PFOS_IIS	(502.8 / 79.9) 429100	(9.40 , N/A) (N/A , -0.03 , N/A)	616.6	N/A	1.3444 [1.0000]	134.4% { 123.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1419353	(3.63 , N/A) (N/A , -0.03 , N/A)	858.0	N/A	8.0835 [8.0000]	101.0% { 113.0% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 733511	(4.94 , N/A) (N/A , -0.02 , N/A)	727.8	N/A	4.0453 [4.0000]	101.1% { 107.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 552178	(6.10 , N/A) (N/A , -0.02 , N/A)	838.4	N/A	1.8413 [2.0000]	92.1% { 103.0% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 535767	(7.03 , N/A) (N/A , -0.02 , N/A)	647.3	N/A	2.0479 [2.0000]	102.4% { 119.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 563924	(7.85 , N/A) (N/A , -0.03 , N/A)	567.3	N/A	1.9592 [2.0000]	98.0% { 94.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 217392	(8.59 , N/A) (N/A , -0.03 , N/A)	444.5	N/A	0.8704 [1.0000]	87.0% { 93.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 287072	(9.26 , N/A) (N/A , -0.03 , N/A)	512.7	N/A	0.9106 [1.0000]	91.1% { 104.3% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 355253	(9.69 , N/A) (N/A , -0.02 , N/A)	588.0	N/A	0.7923 [1.0000]	79.2% { 95.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (16)
Acquired: 2022/12/22 - 14:37

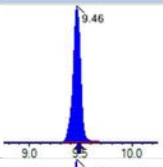
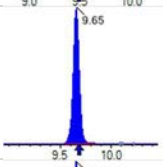
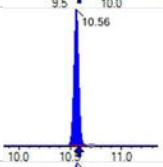
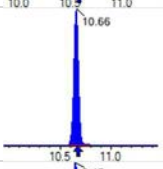
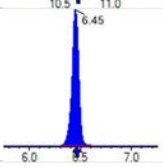
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 382764	(9.88 , N/A) (N/A , -0.01 , N/A)	679.6	N/A	0.8552 [1.0000]	85.5% { 104.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 300619	(10.11 , N/A) (N/A , -0.01 , N/A)	628.3	N/A	1.0114 [1.0000]	101.1% { 117.8% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1499978	(6.05 , N/A) (N/A , -0.02 , N/A)	731.3	N/A	1.8470 [2.0000]	92.4% { 112.6% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 782161	(7.97 , N/A) (N/A , -0.03 , N/A)	736.7	N/A	1.8102 [2.0000]	90.5% { 101.9% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1279191	(9.40 , N/A) (N/A , -0.03 , N/A)	215.3	N/A	1.7370 [2.0000]	86.8% { 114.5% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 222854	(5.77 , N/A) (N/A , -0.02 , N/A)	608.9	N/A	3.2400 [4.0000]	81.0% { 99.0% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 334292	(7.51 , N/A) (N/A , -0.02 , N/A)	833.7	N/A	4.0367 [4.0000]	100.9% { 99.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 278027	(8.92 , N/A) (N/A , -0.03 , N/A)	348.4	N/A	3.3538 [4.0000]	83.8% { 88.0% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1512132	(10.16 , N/A) (N/A , -0.02 , N/A)	940.6	N/A	1.6244 [2.0000]	81.2% { 110.8% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 324017	(10.60 , N/A) (N/A , -0.01 , N/A)	937.1	N/A	1.5942 [2.0000]	79.7% { 112.8% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 292895	(10.68 , N/A) (N/A , -0.01 , N/A)	899.7	N/A	1.5610 [2.0000]	78.1% { 96.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (16)
Acquired: 2022/12/22 - 14:37

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) 458718	(9.46 , N/A) (N/A , -0.03 , N/A)	937.2	N/A	2.6194 [4.0000]	65.5% { 86.8% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 438747	(9.65 , N/A) (N/A , -0.02 , N/A)	358.6	N/A	2.8425 [4.0000]	71.1% { 105.7% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 505683	(10.56 , N/A) (N/A , -0.01 , N/A)	1002.6	N/A	17.7191 [20.0000]	88.6% { 116.3% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 231561	(10.66 , N/A) (N/A , -0.02 , N/A)	1491.4	N/A	17.8229 [20.0000]	89.1% { 116.9% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1263536	(6.45 , N/A) (N/A , -0.02 , N/A)	792.1	N/A	7.9246 [8.0000]	99.1% { 103.8% }			

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0134
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2252011
Standard ID:	22L0304	Sequence:	SB03951

Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SB03951-CCV3	PFBA	20.0	21.4	107	ng/mL	+/- 30.00%
	PFPEA	10.0	10.1	101	ng/mL	+/- 30.00%
	PFHXA	5.00	5.14	103	ng/mL	+/- 30.00%
	PFHPA	5.00	4.81	96.1	ng/mL	+/- 30.00%
	PFOA	5.00	4.75	95.0	ng/mL	+/- 30.00%
	PFNA	5.00	4.82	96.4	ng/mL	+/- 30.00%
	PFDA	5.00	4.94	98.8	ng/mL	+/- 30.00%
	PFUnA	5.00	5.31	106	ng/mL	+/- 30.00%
	PFDOA	5.00	5.04	101	ng/mL	+/- 30.00%
	PFTRDA	5.00	4.56	91.2	ng/mL	+/- 30.00%
	PFTEDA	5.00	5.88	118	ng/mL	+/- 30.00%
	PFBS	4.42	4.28	96.8	ng/mL	+/- 30.00%
	PFPES	4.70	4.73	101	ng/mL	+/- 30.00%
	PFHXS	4.58	4.45	97.1	ng/mL	+/- 30.00%
	PFHPS	4.78	5.82	122	ng/mL	+/- 30.00%
	PFOS	4.65	4.84	104	ng/mL	+/- 30.00%
	PFNS	4.80	5.13	107	ng/mL	+/- 30.00%
	PFDS	4.82	5.61	116	ng/mL	+/- 30.00%
	PFDOS	4.85	5.63	116	ng/mL	+/- 30.00%
	4:2FTS	18.8	17.5	93.2	ng/mL	+/- 30.00%
	6:2FTS	19.0	17.2	90.8	ng/mL	+/- 30.00%
	8:2FTS	19.2	15.7	81.6	ng/mL	+/- 30.00%
	PFOSA	5.00	5.50	110	ng/mL	+/- 30.00%
	NMeFOSA	20.0	20.8	104	ng/mL	+/- 30.00%
	NEtFOSA	20.0	19.9	99.6	ng/mL	+/- 30.00%
	NMeFOSAA	5.00	5.26	105	ng/mL	+/- 30.00%
	NEtFOSAA	5.00	4.52	90.5	ng/mL	+/- 30.00%
	NMeFOSE	20.0	20.8	104	ng/mL	+/- 30.00%
	NEtFOSE	20.0	19.6	98.1	ng/mL	+/- 30.00%
	HFPO-DA	10.0	9.71	97.1	ng/mL	+/- 30.00%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 1633

Laboratory:	APPL, LLC	Work Order:	22L0134
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Instrument ID:	Saphira	Calibration:	2252011
Standard ID:	22L0304	Sequence:	SB03951

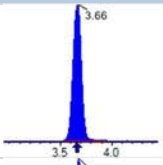
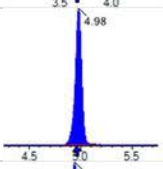
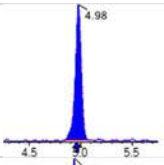
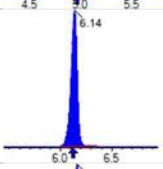
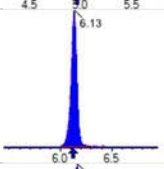
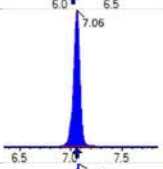
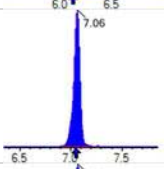
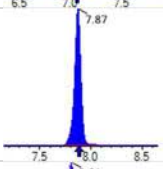
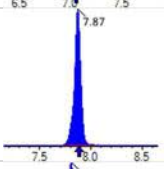
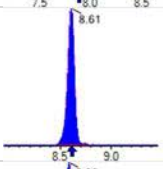
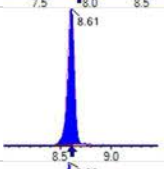
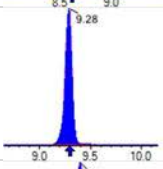
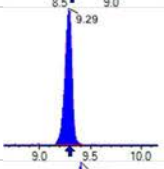
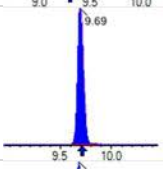
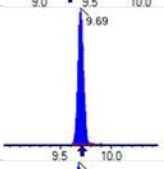
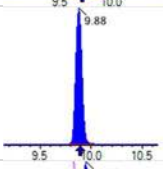
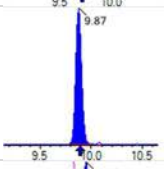
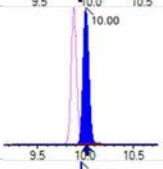
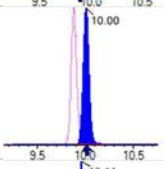
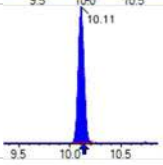
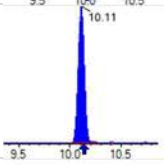
Lab Sample ID	Analyte	True	Found	%R	Units	Control Limit
SB03951-CCV3	ADONA	9.45	9.06	95.9	ng/mL	+/- 30.00%
	PFEESA	8.90	8.77	98.5	ng/mL	+/- 30.00%
	PFMPA	10.0	10.7	107	ng/mL	+/- 30.00%
	PFMBA	10.0	10.0	100	ng/mL	+/- 30.00%
	NFDHA	10.0	10.8	108	ng/mL	+/- 30.00%
	9CL-PF3ONS	9.35	8.87	94.9	ng/mL	+/- 30.00%
	11CL-PF3OUDS	9.45	9.32	98.6	ng/mL	+/- 30.00%
	3:3FTCA	20.0	23.1	116	ng/mL	+/- 30.00%
	5:3FTCA	20.0	20.2	101	ng/mL	+/- 30.00%
	7:3FTCA	20.0	21.9	110	ng/mL	+/- 30.00%

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (33)
Acquired: 2022/12/22 - 18:13

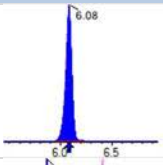
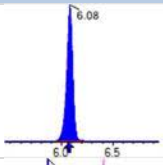
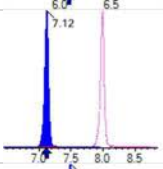
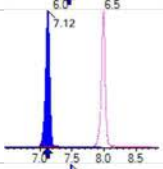
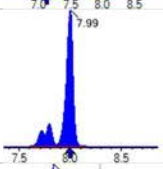
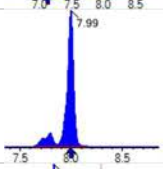
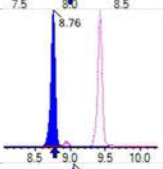
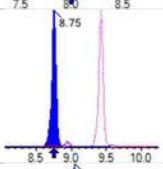
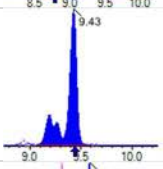
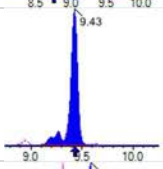
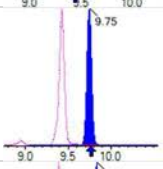
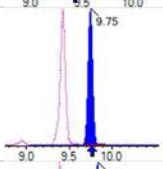
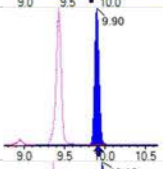
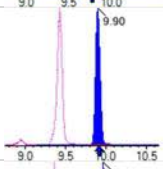
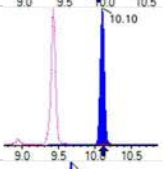
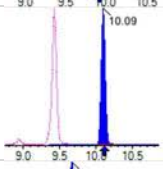
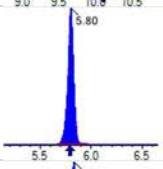
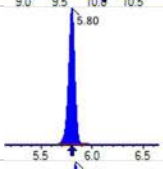
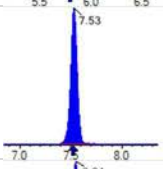
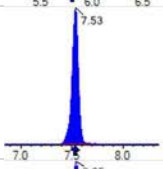
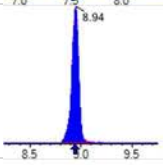
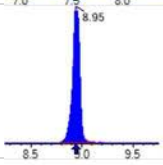
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 2329567	(3.66 , 1.00) (0.00 , N/A , 0.0)	74.1	N/A 0.0 0.0	21.3534 [20.0000]	106.8%			
PFPeA	(262.9 / 219.0) 1588778 (262.9 / 69.0) 16368	(4.98 , 1.00) (0.00 , N/A , 0.2)	742.9 266.9	0.0103 92.0 99.1	10.0730 [10.0000]	100.7%			
PFHxA	(313.0 / 269.0) 1265100 (313.0 / 119.0) 123682	(6.14 , 1.00) (0.00 , N/A , 0.1)	482.2 523.1	0.0978 100.0 109.4	5.1424 [5.0000]	102.8%			
PFHpA	(363.0 / 319.0) 1106860 (363.0 / 169.0) 316230	(7.06 , 1.00) (0.00 , N/A , -0.3)	556.8 583.1	0.2857 91.7 92.7	4.8062 [5.0000]	96.1%			
PFOA	(413.0 / 369.0) 1314240 (413.0 / 169.0) 413034	(7.87 , 1.00) (0.00 , N/A , 0.1)	686.5 668.7	0.3143 96.2 106.2	4.7522 [5.0000]	95.0%			
PFNA	(463.0 / 419.0) 1057815 (463.0 / 169.0) 207817	(8.61 , 1.00) (0.00 , N/A , 0.0)	549.8 113.5	0.1965 101.9 94.3	4.8214 [5.0000]	96.4%			
PFDA	(513.0 / 469.0) 1295759 (513.0 / 169.0) 135325	(9.28 , 1.00) (0.00 , N/A , -0.1)	522.9 395.8	0.1044 109.3 106.3	4.9419 [5.0000]	98.8%			
PFUnA	(563.0 / 519.0) 1462777 (563.0 / 169.0) 144281	(9.69 , 1.00) (-0.01 , N/A , -0.2)	753.4 416.8	0.0986 113.6 110.0	5.3095 [5.0000]	106.2%			
PFDoA	(613.0 / 569.0) 1754907 (613.0 / 169.0) 201901	(9.88 , 1.00) (0.00 , N/A , 0.2)	804.7 485.0	0.1150 82.6 87.5	5.0383 [5.0000]	100.8%			
PFTrDA	(663.0 / 619.0) 1376291 (663.0 / 169.0) 305542	(10.00 , 1.01) (N/A , -0.01 , -0.1)	881.9 519.4	0.2220 108.5 97.1	4.5606 [5.0000]	91.2%			
PFTeDA	(713.0 / 669.0) 1389894 (713.0 / 169.0) 266394	(10.11 , 1.00) (0.00 , N/A , -0.2)	833.2 648.0	0.1917 94.2 93.4	5.8755 [5.0000]	117.5%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (33)
Acquired: 2022/12/22 - 18:13

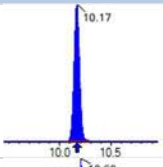
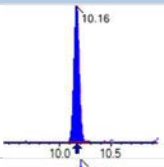
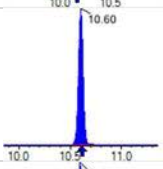
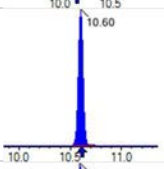
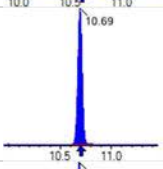
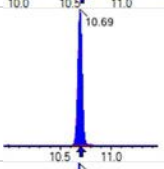
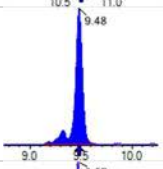
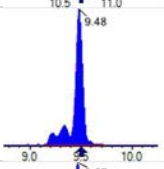
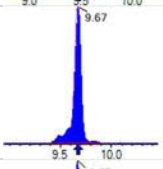
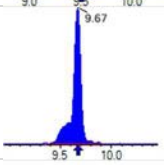
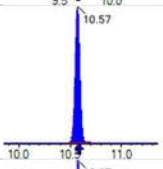
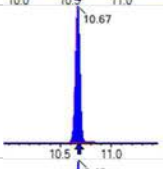
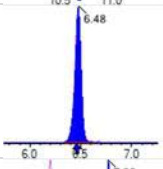
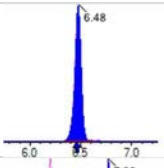
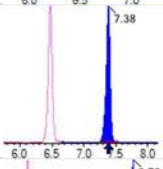
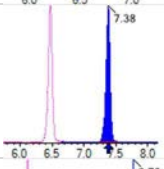
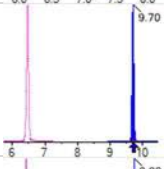
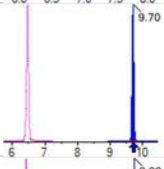
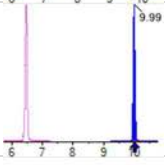
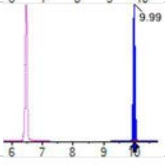
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 1770464 (298.9 / 99.0) 1243235	(6.08 , 1.00) (0.00 , N/A , 0.0)	658.5 669.6	0.7022 114.1 107.2	4.2801 [4.4237]	96.8%			
PFPeS	(349.0 / 80.0) 3355149 (349.0 / 99.0) 1155562	(7.12 , 0.89) (N/A , 0.01 , -0.1)	891.1 678.6	0.3444 96.8 89.7	4.7342 [4.6919]	100.9%			
PFHxS	(399.0 / 80.0) 2740948 (399.0 / 99.0) 930351	(7.99 , 1.00) (0.00 , N/A , 0.1)	2730.6 3069.8	0.3394 101.0 102.5	4.4472 [4.5549]	97.6%			
PFHpS	(449.0 / 80.0) 2771477 (449.0 / 99.0) 697823	(8.76 , 0.93) (N/A , -0.01 , 0.2)	613.3 463.0	0.2518 92.0 99.0	5.8180 [4.7570]	122.3%			
PFOS	(499.0 / 80.0) 2869152 (499.0 / 99.0) 718374	(9.43 , 1.00) (0.00 , N/A , 0.0)	104.3 167.0	0.2504 103.0 109.5	4.8418 [4.6375]	104.4%			
PFNS	(549.0 / 80.0) 3370808 (549.0 / 99.0) 861335	(9.75 , 1.03) (N/A , -0.01 , -0.1)	656.2 864.2	0.2555 104.7 100.1	5.1278 [4.7994]	106.8%			
PFDS	(599.0 / 80.0) 4095524 (599.0 / 99.0) 1029395	(9.90 , 1.05) (N/A , -0.01 , 0.0)	952.3 850.4	0.2513 111.7 107.4	5.6120 [4.8155]	116.5%			
PFDoS	(698.9 / 80.0) 1715967 (698.9 / 99.0) 418660	(10.10 , 1.07) (N/A , -0.01 , 0.2)	950.7 1204.5	0.2440 99.7 125.7	5.6259 [4.8478]	116.1%			
4:2FTS	(327.0 / 307.0) 3504022 (327.0 / 81.0) 1969471	(5.80 , 1.00) (0.00 , N/A , 0.1)	849.1 862.4	0.5621 113.8 98.2	17.5197 [18.6906]	93.7%			
6:2FTS	(427.0 / 407.0) 2241523 (427.0 / 81.0) 1456278	(7.53 , 1.00) (0.00 , N/A , -0.2)	995.1 969.6	0.6497 83.5 93.2	17.2454 [18.9808]	90.9%			
8:2FTS	(527.0 / 507.0) 1871197 (527.0 / 81.0) 1111280	(8.94 , 1.00) (0.00 , N/A , -0.1)	571.1 506.2	0.5939 104.9 107.9	15.6670 [19.1658]	81.7%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (33)
Acquired: 2022/12/22 - 18:13

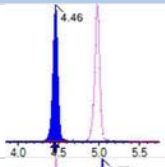
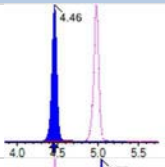
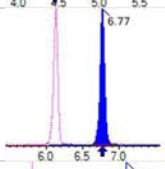
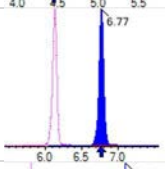
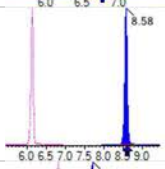
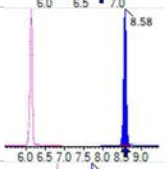
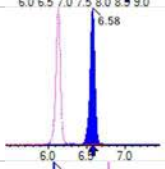
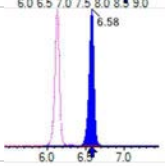
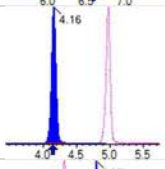
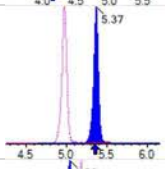
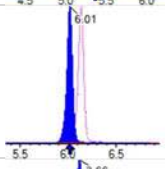
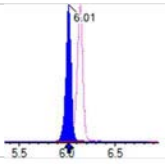
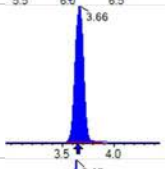
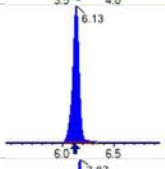
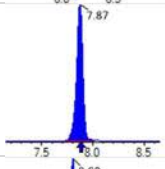
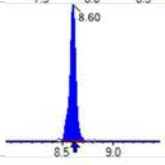
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 4154372 (498.0 / 478.0) 86834	(10.17 , 1.00) (0.00 , N/A , 0.2)	911.5 352.4	0.0209 100.3 86.2	5.4994 [5.0000]	110.0%			
NMeFOSA	(511.9 / 219.0) 3089993 (511.9 / 169.0) 1929702	(10.60 , 1.00) (0.00 , N/A , 0.1)	1291.5 1124.1	0.6245 86.7 92.4	20.8314 [20.0000]	104.2%			
NEtFOSA	(526.0 / 219.0) 3121180 (526.0 / 169.0) 3483795	(10.69 , 1.00) (0.00 , N/A , 0.0)	1079.3 1304.0	1.1162 105.5 105.3	19.9228 [20.0000]	99.6%			
NMeFOSAA	(570.0 / 419.0) 527197 (570.0 / 483.0) 280214	(9.48 , 1.00) (0.00 , N/A , -0.1)	422.9 504.9	0.5315 86.5 106.3	5.2646 [5.0000]	105.3%			
NEtFOSAA	(584.0 / 419.0) 455415 (584.0 / 526.0) 289550	(9.67 , 1.00) (0.01 , N/A , 0.4)	842.8 388032.7	0.6358 86.7 87.5	4.5229 [5.0000]	90.5%			
NMeFOSE	(616.1 / 59.0) 688149	(10.57 , 1.00) (0.01 , N/A , 0.0)	1101.7	N/A 0.0 0.0	20.8386 [20.0000]	104.2%			
NEtFOSE	(630.0 / 59.0) 122249	(10.67 , 1.00) (0.01 , N/A , 0.0)	980.7	N/A 0.0 0.0	19.6110 [20.0000]	98.1%			
HFPO-DA	(285.0 / 169.0) 944262 (285.0 / 185.0) 2581735	(6.48 , 1.00) (0.00 , N/A , 0.0)	611.5 912.5	2.7341 99.6 105.1	9.7065 [10.0000]	97.1%			
ADONA	(377.0 / 85.0) 3914647 (377.0 / 251.0) 517903	(7.38 , 1.14) (N/A , 0.00 , 0.1)	778.0 706.6	0.1323 106.2 103.6	9.0597 [9.4270]	96.1%			
9Cl-Pf3ONS	(531.0 / 351.0) 10425825 (533.0 / 353.0) 3291787	(9.70 , 1.50) (N/A , -0.01 , -0.1)	1199.2 1073.9	0.3157 106.7 108.8	8.8697 [9.3325]	95.0%			
11Cl-PF3OUDS	(631.0 / 451.0) 5629636 (633.0 / 453.0) 1837885	(9.99 , 1.54) (N/A , -0.02 , -0.1)	847.8 619.7	0.3265 98.7 101.6	9.3218 [9.4321]	98.8%			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (33)
Acquired: 2022/12/22 - 18:13

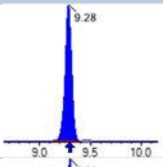
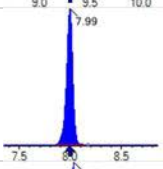
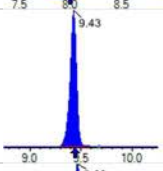
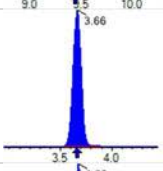
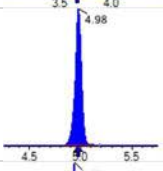
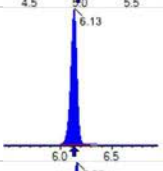
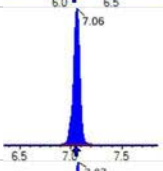
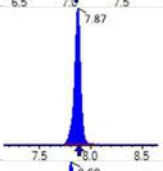
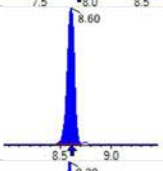
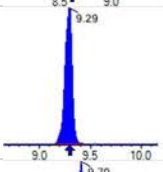
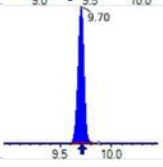
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 125980 (241.0 / 117.0) 205696	(4.46 , 0.90) (N/A , 0.02 , 0.0)	750.7 620.5	1.6328 97.6 97.2	23.1433 [20.0000]	115.7%			
5:3FTCA	(341.0 / 236.7) 879247 (341.0 / 217.0) 1433265	(6.77 , 1.10) (N/A , 0.01 , -0.1)	479.0 621.9	1.6301 111.4 101.4	20.2264 [20.0000]	101.1%			
7:3FTCA	(441.0 / 317.0) 1095640 (441.0 / 337.0) 951207	(8.58 , 1.40) (N/A , -0.01 , 0.0)	484.0 483.1	0.8682 103.7 104.1	21.9049 [20.0000]	109.5%			
PFEESA	(315.0 / 135.0) 2361207 (315.0 / 83.0) 730225	(6.58 , 1.07) (N/A , 0.00 , -0.1)	892.7 784.8	0.3093 100.7 104.7	8.7666 [8.9246]	98.2%			
PFMPA	(229.0 / 85.0) 461480	(4.16 , 0.84) (N/A , 0.01 , 0.0)	923.3	N/A 0.0 0.0	10.6605 [10.0000]	106.6%			
PFMBA	(279.0 / 85.0) 1500223	(5.37 , 1.08) (N/A , 0.02 , 0.0)	925.3	N/A 0.0 0.0	10.0264 [10.0000]	100.3%			
NFDHA	(295.0 / 201.0) 1344733 (295.0 / 85.0) 1200999	(6.01 , 0.98) (N/A , 0.01 , 0.0)	752.3 1049.1	0.8931 101.2 102.0	10.8404 [10.0000]	108.4%			
13C3_PFBA_IIS	(216.0 / 172.0) 167706	(3.66 , N/A) (N/A , 0.01 , N/A)	642.3	N/A	1.2048 [1.0000]	120.5% { 106.8% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 250241	(6.13 , N/A) (N/A , 0.01 , N/A)	631.9	N/A	1.0837 [1.0000]	108.4% { 106.1% }			
13C4_PFOA_IIS	(417.0 / 372.0) 258166	(7.87 , N/A) (N/A , 0.00 , N/A)	497.3	N/A	1.1743 [1.0000]	117.4% { 100.5% }			
13C5_PFNA_IIS	(468.0 / 423.0) 207452	(8.60 , N/A) (N/A , -0.01 , N/A)	334.9	N/A	1.1203 [1.0000]	112.0% { 88.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (33)
Acquired: 2022/12/22 - 18:13

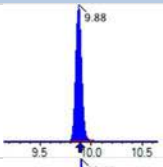
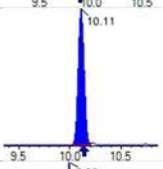
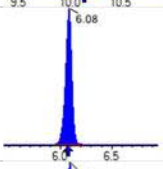
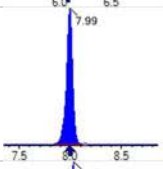
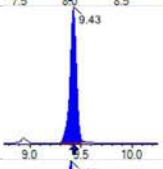
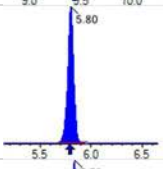
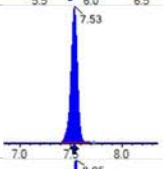
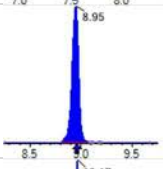
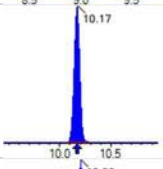
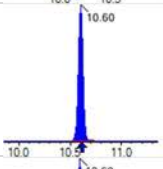
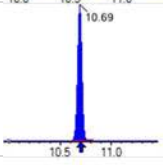
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 199799	(9.28 , N/A) (N/A , -0.01 , N/A)	314.0	N/A	1.0811 [1.0000]	108.1% { 106.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 462355	(7.99 , N/A) (N/A , 0.00 , N/A)	799.7	N/A	1.1453 [1.0000]	114.5% { 103.6% }			
13C4_PFOS_IIS	(502.8 / 79.9) 386574	(9.43 , N/A) (N/A , -0.01 , N/A)	419.6	N/A	1.2112 [1.0000]	121.1% { 111.5% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1337805	(3.66 , N/A) (N/A , 0.01 , N/A)	726.3	N/A	7.7506 [8.0000]	96.9% { 106.5% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 718361	(4.98 , N/A) (N/A , 0.01 , N/A)	631.9	N/A	4.1258 [4.0000]	103.1% { 105.7% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 572910	(6.13 , N/A) (N/A , 0.01 , N/A)	597.5	N/A	1.9895 [2.0000]	99.5% { 106.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 505300	(7.06 , N/A) (N/A , 0.01 , N/A)	635.7	N/A	2.0114 [2.0000]	100.6% { 112.3% }			
13C8_PFOA_EIS	(421.0 / 376.0) 562459	(7.87 , N/A) (N/A , 0.00 , N/A)	805.1	N/A	1.9866 [2.0000]	99.3% { 94.4% }			
13C9_PFNA_EIS	(472.0 / 427.0) 255691	(8.60 , N/A) (N/A , -0.01 , N/A)	410.6	N/A	1.1209 [1.0000]	112.1% { 110.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 275465	(9.29 , N/A) (N/A , 0.00 , N/A)	467.2	N/A	0.9694 [1.0000]	96.9% { 100.1% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 348613	(9.70 , N/A) (N/A , -0.01 , N/A)	419.3	N/A	0.8625 [1.0000]	86.2% { 93.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (33)
Acquired: 2022/12/22 - 18:13

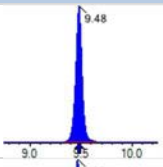
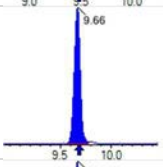
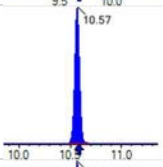
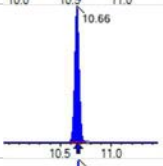
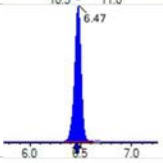
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 404039	(9.88 , N/A) (N/A , -0.02 , N/A)	461.4	N/A	1.0015 [1.0000]	100.2% { 110.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 266914	(10.11 , N/A) (N/A , -0.01 , N/A)	435.0	N/A	0.9962 [1.0000]	99.6% { 104.6% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1508996	(6.08 , N/A) (N/A , 0.01 , N/A)	676.0	N/A	1.9303 [2.0000]	96.5% { 113.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 793420	(7.99 , N/A) (N/A , 0.00 , N/A)	787.3	N/A	1.9076 [2.0000]	95.4% { 103.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1091884	(9.43 , N/A) (N/A , -0.01 , N/A)	244.6	N/A	1.6457 [2.0000]	82.3% { 97.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 241953	(5.80 , N/A) (N/A , 0.01 , N/A)	634.7	N/A	3.6543 [4.0000]	91.4% { 107.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 338147	(7.53 , N/A) (N/A , 0.00 , N/A)	668.6	N/A	4.2420 [4.0000]	106.0% { 100.5% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 301545	(8.95 , N/A) (N/A , 0.00 , N/A)	398.8	N/A	3.7788 [4.0000]	94.5% { 95.4% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1598613	(10.17 , N/A) (N/A , -0.01 , N/A)	905.8	N/A	1.9062 [2.0000]	95.3% { 117.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 363940	(10.60 , N/A) (N/A , -0.01 , N/A)	1281.0	N/A	1.9876 [2.0000]	99.4% { 126.7% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 347362	(10.69 , N/A) (N/A , -0.01 , N/A)	956.5	N/A	2.0550 [2.0000]	102.8% { 114.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCV3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (33)
Acquired: 2022/12/22 - 18:13

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) 514015	(9.48 , N/A) (N/A , -0.01 , N/A)	436.0	N/A	3.2581 [4.0000]	81.5% { 97.2% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 448621	(9.66 , N/A) (N/A , -0.01 , N/A)	460.3	N/A	3.2262 [4.0000]	80.7% { 108.1% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 523257	(10.57 , N/A) (N/A , -0.01 , N/A)	783.0	N/A	20.3519 [20.0000]	101.8% { 120.4% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 243492	(10.66 , N/A) (N/A , -0.01 , N/A)	1302.1	N/A	20.8028 [20.0000]	104.0% { 122.9% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1280418	(6.47 , N/A) (N/A , 0.00 , N/A)	658.1	N/A	8.3630 [8.0000]	104.5% { 105.2% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SB03941
Calibration: 2252011

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

Lab Sample ID	Analyte	Found	Units	RL	C
SB03941-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	0.0144	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	0.0146	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	0.0124	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: SB03941
Calibration: 2252011

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

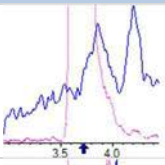
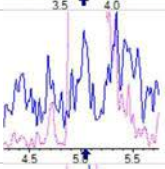
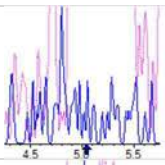
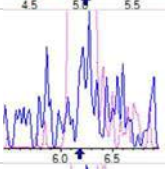
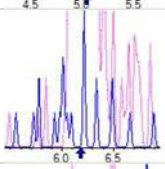
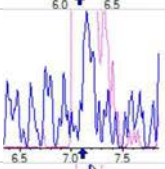
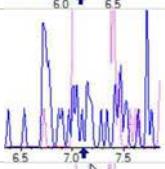
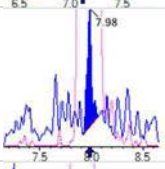
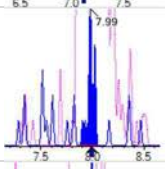
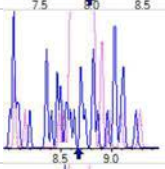
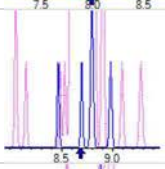
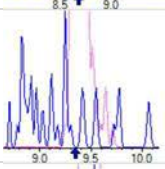
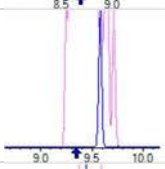
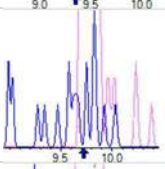
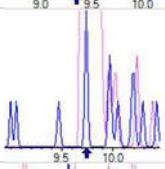
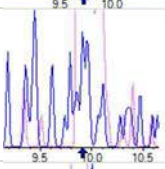
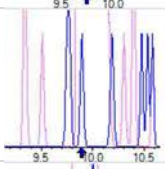
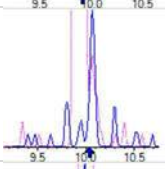
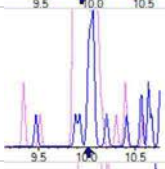
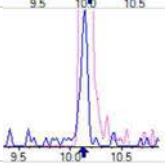
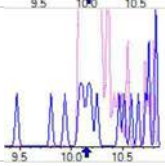
Lab Sample ID	Analyte	Found	Units	RL	C
SB03941-ICB1	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.24	ng/mL		
	13C5-PFPEA	4.11	ng/mL		
	13C5-PFHXA	1.95	ng/mL		
	13C4-PFHPA	2.08	ng/mL		
	13C8-PFOA	2.18	ng/mL		
	13C9-PFNA	1.04	ng/mL		
	13C6-PFDA	1.03	ng/mL		
	13C7-PFUnA	1.08	ng/mL		
	13C2-PFDOA	1.09	ng/mL		
	13C2-PFTEDA	1.15	ng/mL		
	13C3-PFBS	2.21	ng/mL		
	13C3-PFHXS	2.21	ng/mL		
	13C8-PFOS	2.47	ng/mL		
	13C2-4:2FTS	4.05	ng/mL		
	13C2-6:2FTS	4.81	ng/mL		
	13C2-8:2FTS	4.00	ng/mL		
	13C8-PFOSA	2.42	ng/mL		
	D5-NETFOSA	2.32	ng/mL		
	D3-NMEFOSA	2.31	ng/mL		
	D3-NMEFOSAA	4.78	ng/mL		
	D5-NETFOSAA	4.58	ng/mL		
	D7-NMEFOSE	21.9	ng/mL		
	D9-NETFOSE	21.3	ng/mL		
	13C3-HFPO-DA	8.60	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (9)
Acquired: 2022/12/21 - 16:08

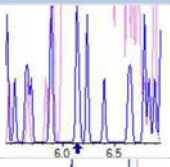
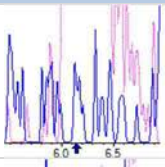
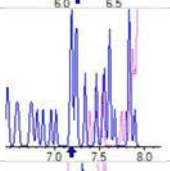
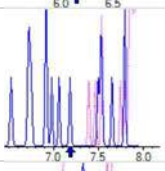
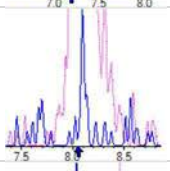
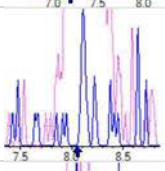
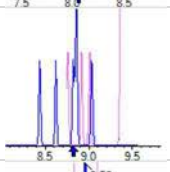
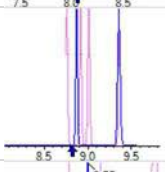
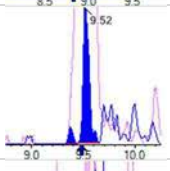
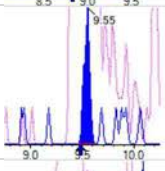
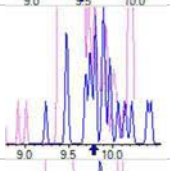
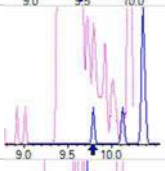
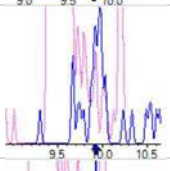
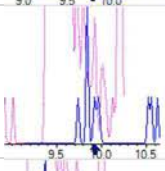
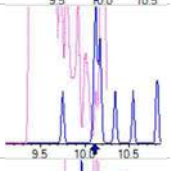
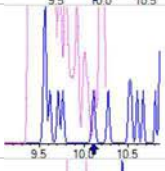
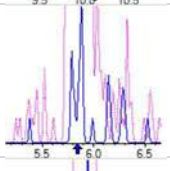
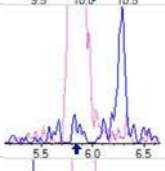
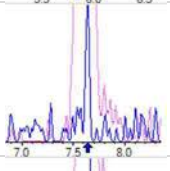
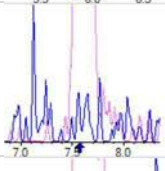
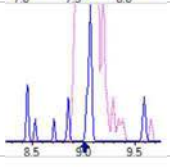
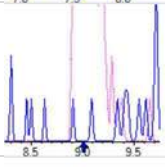
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) N/A (262.9 / 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) 3496 (413.0 / 169.0) 986	(7.98 , 1.00) (0.01 , N/A , -0.4)	15.4 42.4	0.2821 86.3 86.3	0.0144	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.: SB03941-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (9)
Acquired: 2022/12/21 - 16:08

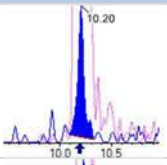
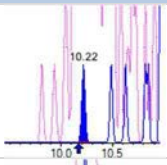
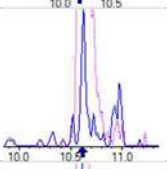
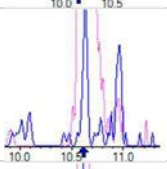
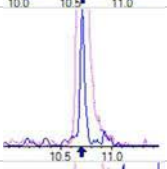
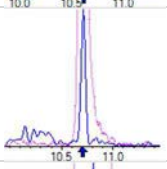
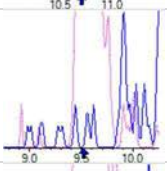
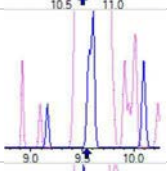
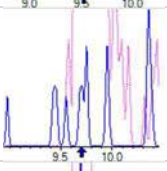
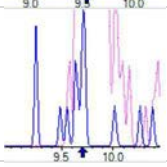
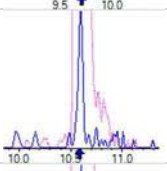
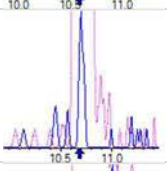
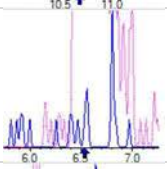
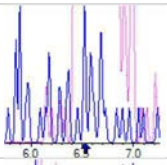
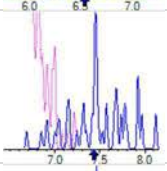
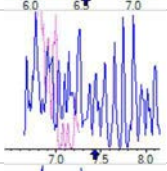
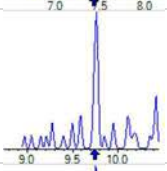
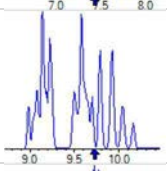
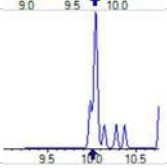
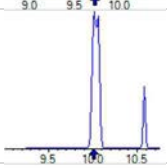
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) N/A (298.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 9898 (499.0 / 99.0) 1897	(9.52 , 1.00) (0.00 , N/A , -1.2)	48.5 19.3	0.1916 78.8 78.8	0.0146	N/A			MI5 DG 2022-12-21
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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(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.: SB03941-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (9)
Acquired: 2022/12/21 - 16:08

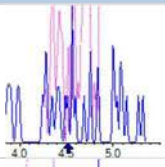
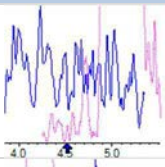
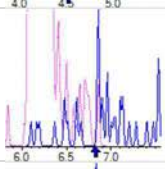
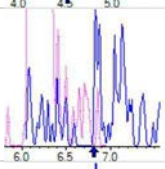
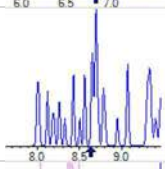
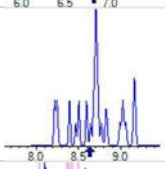
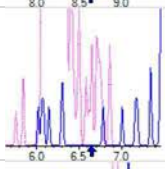
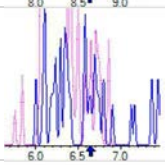
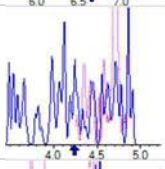
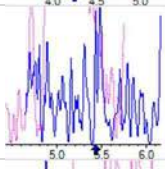
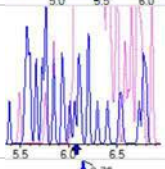
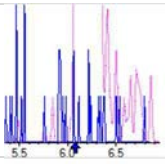
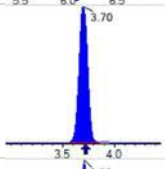
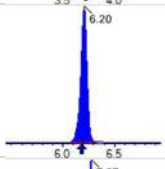
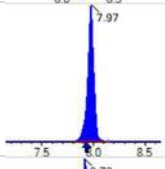
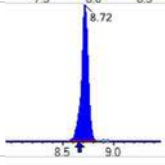
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 9076 (498.0 / 478.0) 300	(10.20 , 1.00) (0.00 , N/A , -0.8)	34.8 12.4	0.0330 158.5 158.5	0.0124	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 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.: SB03941-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (9)
Acquired: 2022/12/21 - 16:08

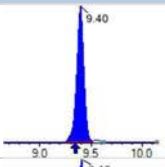
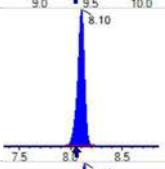
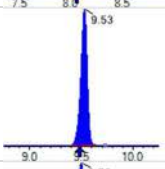
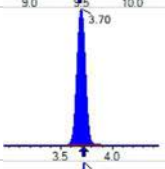
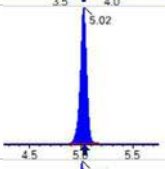
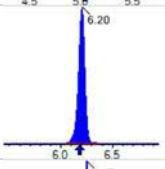
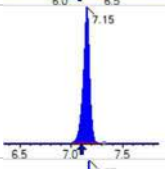
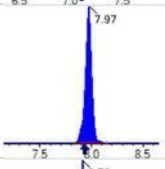
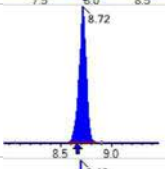
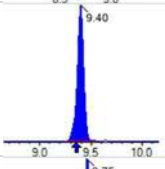
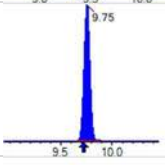
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 137297	(3.70 , N/A) (N/A , -0.02 , N/A)	766.0	N/A	0.9864 [1.0000]	98.6% { 90.5% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 223416	(6.20 , N/A) (N/A , 0.02 , N/A)	460.7	N/A	0.9675 [1.0000]	96.8% { 95.5% }			
13C4_PFOA_IIS	(417.0 / 372.0) 206725	(7.97 , N/A) (N/A , 0.05 , N/A)	562.5	N/A	0.9403 [1.0000]	94.0% { 86.9% }			
13C5_PFNA_IIS	(468.0 / 423.0) 186093	(8.72 , N/A) (N/A , 0.05 , N/A)	497.6	N/A	1.0049 [1.0000]	100.5% { 92.0% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (9)
Acquired: 2022/12/21 - 16:08

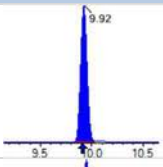
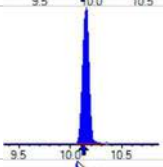
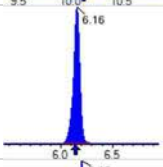
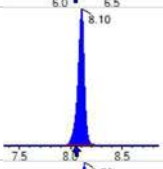
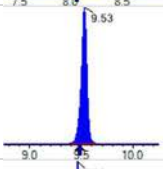
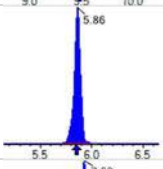
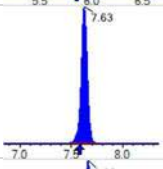
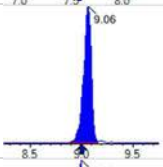
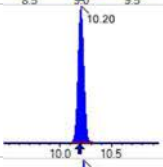
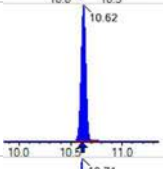
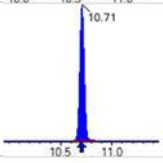
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 184687	(9.40 , N/A) (N/A , 0.05 , N/A)	233.6	N/A	0.9993 [1.0000]	99.9% { 106.2% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 371811	(8.10 , N/A) (N/A , 0.05 , N/A)	662.9	N/A	0.9210 [1.0000]	92.1% { 88.0% }			
13C4_PFOS_IIS	(502.8 / 79.9) 294523	(9.53 , N/A) (N/A , 0.05 , N/A)	539.0	N/A	0.9228 [1.0000]	92.3% { 89.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1164618	(3.70 , N/A) (N/A , -0.02 , N/A)	949.7	N/A	8.2417 [8.0000]	103.0% { 97.8% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 639563	(5.02 , N/A) (N/A , -0.01 , N/A)	719.9	N/A	4.1143 [4.0000]	102.9% { 91.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 500638	(6.20 , N/A) (N/A , 0.02 , N/A)	697.9	N/A	1.9473 [2.0000]	97.4% { 92.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 466966	(7.15 , N/A) (N/A , 0.04 , N/A)	691.4	N/A	2.0820 [2.0000]	104.1% { 95.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 494304	(7.97 , N/A) (N/A , 0.05 , N/A)	917.1	N/A	2.1804 [2.0000]	109.0% { 99.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 213587	(8.72 , N/A) (N/A , 0.05 , N/A)	564.9	N/A	1.0438 [1.0000]	104.4% { 97.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 271082	(9.40 , N/A) (N/A , 0.05 , N/A)	432.0	N/A	1.0320 [1.0000]	103.2% { 96.4% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 404733	(9.75 , N/A) (N/A , 0.03 , N/A)	435.5	N/A	1.0833 [1.0000]	108.3% { 101.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (9)
Acquired: 2022/12/21 - 16:08

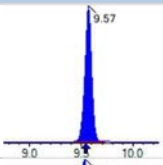
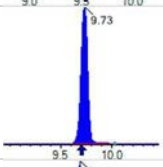
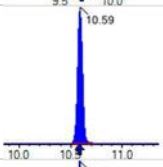
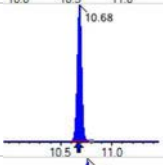
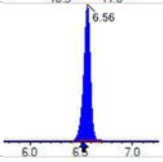
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 407883	(9.92 , N/A) (N/A , 0.02 , N/A)	595.7	N/A	1.0938 [1.0000]	109.4% { 105.2% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 285097	(10.15 , N/A) (N/A , 0.02 , N/A)	425.4	N/A	1.1512 [1.0000]	115.1% { 117.9% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1390129	(6.16 , N/A) (N/A , 0.01 , N/A)	781.9	N/A	2.2113 [2.0000]	110.6% { 101.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 737924	(8.10 , N/A) (N/A , 0.05 , N/A)	828.7	N/A	2.2062 [2.0000]	110.3% { 97.9% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1246594	(9.53 , N/A) (N/A , 0.05 , N/A)	598.1	N/A	2.4662 [2.0000]	123.3% { 104.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 215896	(5.86 , N/A) (N/A , 0.01 , N/A)	739.4	N/A	4.0548 [4.0000]	101.4% { 96.3% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 308341	(7.63 , N/A) (N/A , 0.04 , N/A)	911.4	N/A	4.8100 [4.0000]	120.3% { 112.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 256399	(9.06 , N/A) (N/A , 0.06 , N/A)	310.1	N/A	3.9955 [4.0000]	99.9% { 86.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1544524	(10.20 , N/A) (N/A , 0.02 , N/A)	1476.0	N/A	2.4173 [2.0000]	120.9% { 105.4% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 322844	(10.62 , N/A) (N/A , 0.02 , N/A)	1120.4	N/A	2.3142 [2.0000]	115.7% { 97.8% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 298222	(10.71 , N/A) (N/A , 0.01 , N/A)	1079.5	N/A	2.3157 [2.0000]	115.8% { 104.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: ABK
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03941-ICB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - S2022-12-21A
Path: S2022-12-21A (9)
Acquired: 2022/12/21 - 16:08

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) 574276	(9.57 , N/A) (N/A , 0.04 , N/A)	542.0	N/A	4.7778 [4.0000]	119.4% { 112.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 485417	(9.73 , N/A) (N/A , 0.03 , N/A)	310.2	N/A	4.5818 [4.0000]	114.5% { 103.0% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 428343	(10.59 , N/A) (N/A , 0.01 , N/A)	811.6	N/A	21.8673 [20.0000]	109.3% { 99.3% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 189842	(10.68 , N/A) (N/A , 0.01 , N/A)	1103.1	N/A	21.2885 [20.0000]	106.4% { 104.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1175027	(6.56 , N/A) (N/A , 0.03 , N/A)	697.1	N/A	8.5961 [8.0000]	107.5% { 100.0% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SB03951
Calibration: 2252011

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

Lab Sample ID	Analyte	Found	Units	RL	C
SB03951-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
Client: AECOM
Sequence: SB03951
Calibration: 2252011

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

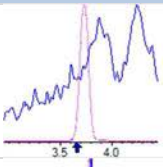
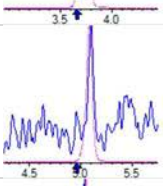
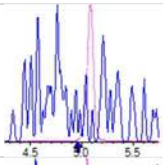
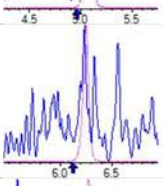
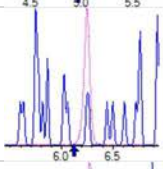
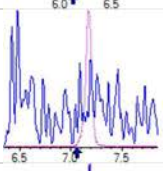
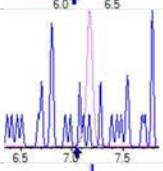
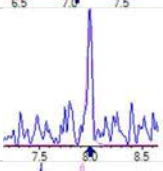
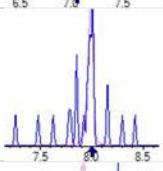
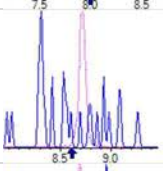
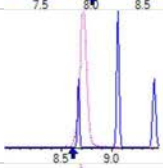
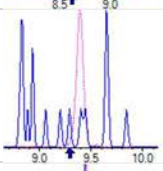
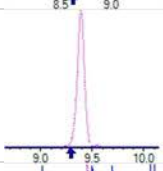
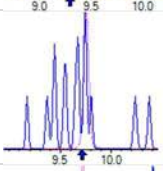
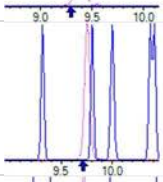
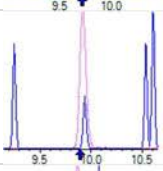
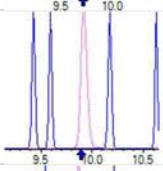
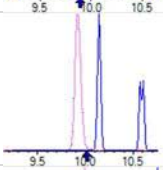
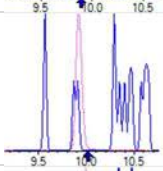
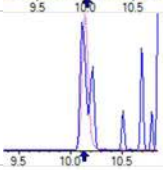
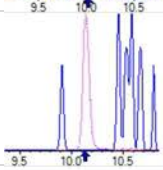
Lab Sample ID	Analyte	Found	Units	RL	C
SB03951-CCB1	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	7.88	ng/mL		
	13C5-PFPEA	4.33	ng/mL		
	13C5-PFHXA	2.02	ng/mL		
	13C4-PFHPA	2.14	ng/mL		
	13C8-PFOA	2.10	ng/mL		
	13C9-PFNA	0.941	ng/mL		
	13C6-PFDA	1.27	ng/mL		
	13C7-PFUnA	1.39	ng/mL		
	13C2-PFDOA	1.12	ng/mL		
	13C2-PFTEDA	1.13	ng/mL		
	13C3-PFBS	1.90	ng/mL		
	13C3-PFHXS	2.05	ng/mL		
	13C8-PFOS	2.01	ng/mL		
	13C2-4:2FTS	4.15	ng/mL		
	13C2-6:2FTS	4.76	ng/mL		
	13C2-8:2FTS	4.52	ng/mL		
	13C8-PFOSA	1.96	ng/mL		
	D5-NETFOSA	1.82	ng/mL		
	D3-NMEFOSA	1.84	ng/mL		
	D3-NMEFOSAA	3.67	ng/mL		
	D5-NETFOSAA	4.36	ng/mL		
	D7-NMEFOSE	18.8	ng/mL		
	D9-NETFOSE	19.2	ng/mL		
	13C3-HFPO-DA	7.55	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (1)
Acquired: 2022/12/22 - 11:01

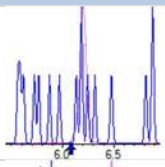
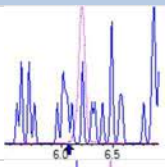
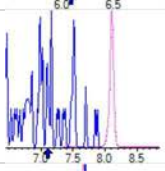
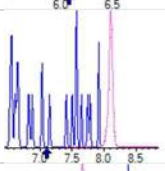
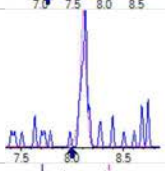
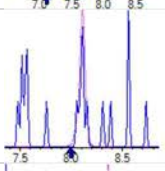
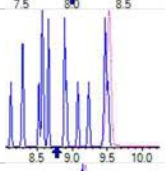
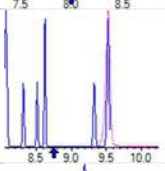
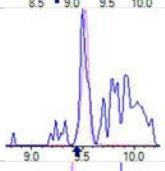
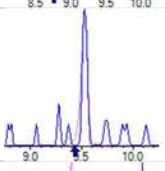
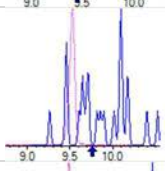
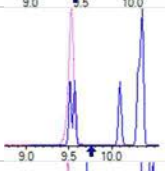
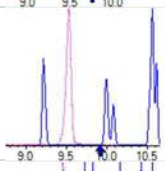
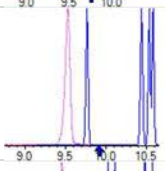
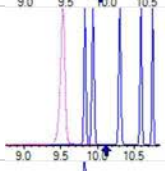
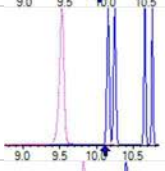
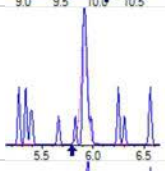
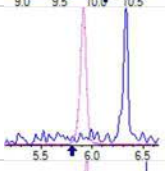
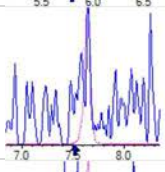
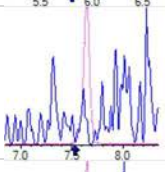
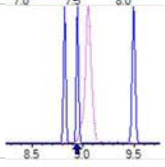
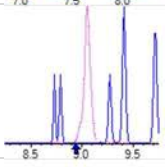
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) N/A (262.9 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (1)
Acquired: 2022/12/22 - 11:01

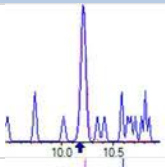
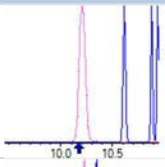
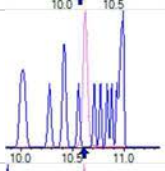
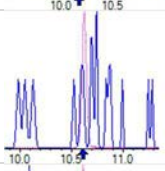
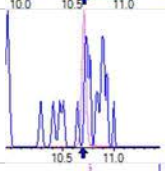
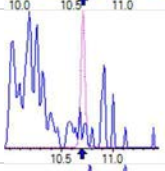
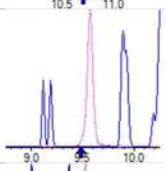
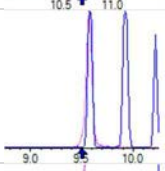
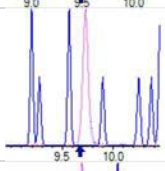
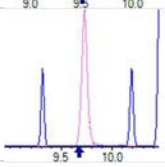
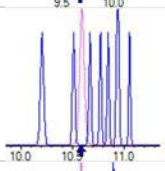
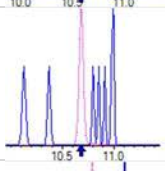
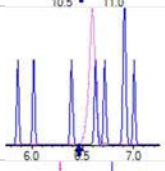
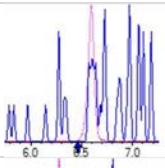
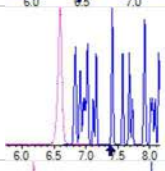
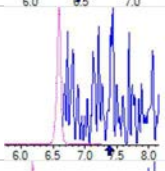
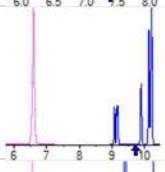
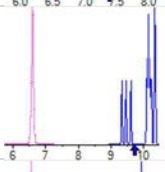
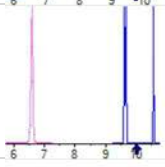
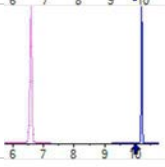
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) N/A (298.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (1)
Acquired: 2022/12/22 - 11:01

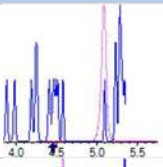
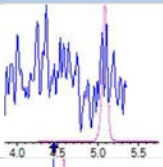
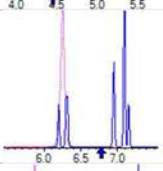
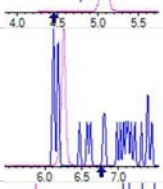
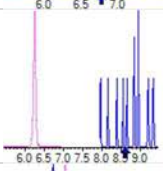
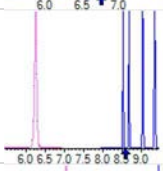
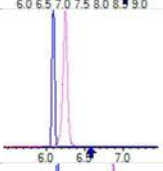
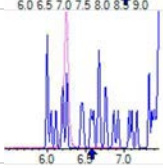
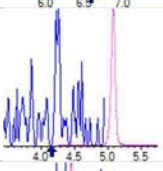
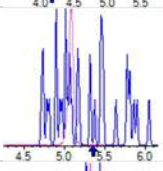
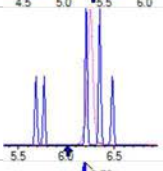
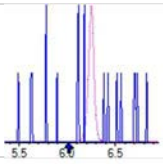
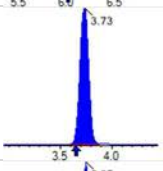
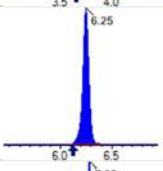
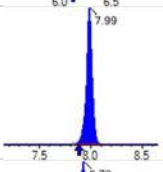
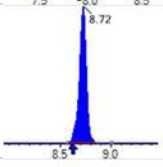
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (1)
Acquired: 2022/12/22 - 11:01

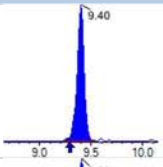
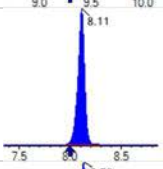
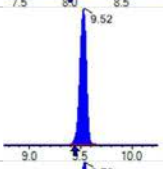
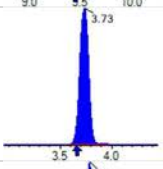
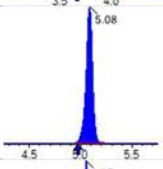
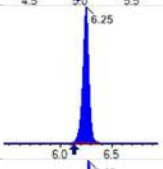
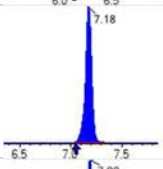
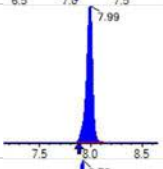
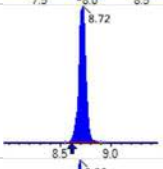
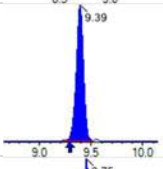
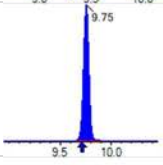
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 166872	(3.73 , N/A) (N/A , 0.08 , N/A)	668.9	N/A	1.1988 [1.0000]	119.9% { 106.2% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 248906	(6.25 , N/A) (N/A , 0.12 , N/A)	673.0	N/A	1.0779 [1.0000]	107.8% { 105.5% }			
13C4_PFOA_IIS	(417.0 / 372.0) 259912	(7.99 , N/A) (N/A , 0.11 , N/A)	622.9	N/A	1.1822 [1.0000]	118.2% { 101.2% }			
13C5_PFNA_IIS	(468.0 / 423.0) 205309	(8.72 , N/A) (N/A , 0.11 , N/A)	380.5	N/A	1.1087 [1.0000]	110.9% { 87.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (1)
Acquired: 2022/12/22 - 11:01

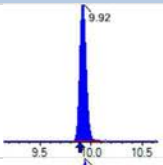
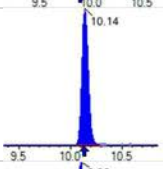
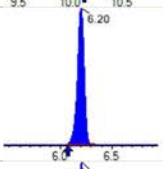
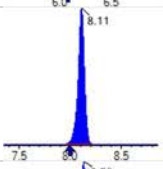
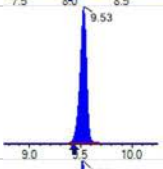
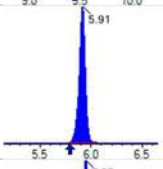
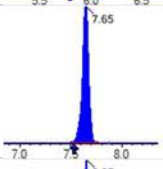
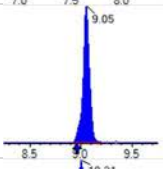
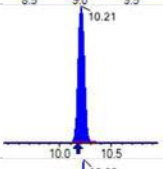
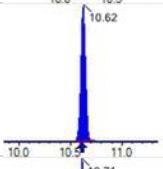
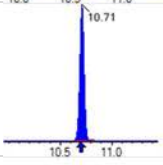
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 159980	(9.40 , N/A) (N/A , 0.11 , N/A)	275.2	N/A	0.8657 [1.0000]	86.6% { 85.5% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 436294	(8.11 , N/A) (N/A , 0.12 , N/A)	668.3	N/A	1.0807 [1.0000]	108.1% { 97.8% }			
13C4_PFOS_IIS	(502.8 / 79.9) 345861	(9.52 , N/A) (N/A , 0.09 , N/A)	448.9	N/A	1.0836 [1.0000]	108.4% { 99.8% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1353571	(3.73 , N/A) (N/A , 0.08 , N/A)	770.7	N/A	7.8812 [8.0000]	98.5% { 107.8% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 749143	(5.08 , N/A) (N/A , 0.12 , N/A)	775.4	N/A	4.3256 [4.0000]	108.1% { 110.2% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 578389	(6.25 , N/A) (N/A , 0.12 , N/A)	869.5	N/A	2.0193 [2.0000]	101.0% { 107.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 534750	(7.18 , N/A) (N/A , 0.12 , N/A)	688.5	N/A	2.1401 [2.0000]	107.0% { 118.9% }			
13C8_PFOA_EIS	(421.0 / 376.0) 598078	(7.99 , N/A) (N/A , 0.12 , N/A)	795.5	N/A	2.0983 [2.0000]	104.9% { 100.4% }			
13C9_PFNA_EIS	(472.0 / 427.0) 212335	(8.72 , N/A) (N/A , 0.10 , N/A)	503.8	N/A	0.9405 [1.0000]	94.1% { 91.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 288489	(9.39 , N/A) (N/A , 0.10 , N/A)	331.5	N/A	1.2679 [1.0000]	126.8% { 104.8% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 449096	(9.75 , N/A) (N/A , 0.04 , N/A)	458.9	N/A	1.3876 [1.0000]	138.8% { 120.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (1)
Acquired: 2022/12/22 - 11:01

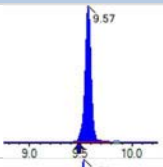
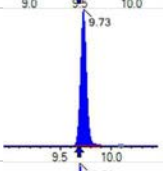
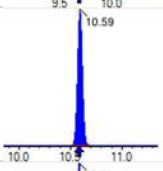
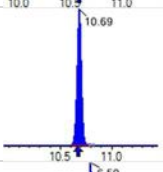
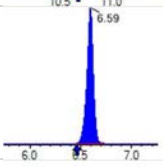
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-Imin, ΔRT-CVmin, ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration True ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 361260	(9.92 , N/A) (N/A , 0.03 , N/A)	419.7	N/A	1.1184 [1.0000]	111.8% { 98.6% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 242892	(10.14 , N/A) (N/A , 0.02 , N/A)	421.7	N/A	1.1322 [1.0000]	113.2% { 95.2% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1399044	(6.20 , N/A) (N/A , 0.13 , N/A)	763.7	N/A	1.8966 [2.0000]	94.8% { 105.0% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 804774	(8.11 , N/A) (N/A , 0.12 , N/A)	771.2	N/A	2.0505 [2.0000]	102.5% { 104.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1194659	(9.53 , N/A) (N/A , 0.09 , N/A)	445.4	N/A	2.0126 [2.0000]	100.6% { 106.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 259168	(5.91 , N/A) (N/A , 0.12 , N/A)	692.8	N/A	4.1481 [4.0000]	103.7% { 115.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 357811	(7.65 , N/A) (N/A , 0.12 , N/A)	683.0	N/A	4.7568 [4.0000]	118.9% { 106.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 340459	(9.05 , N/A) (N/A , 0.11 , N/A)	515.4	N/A	4.5213 [4.0000]	113.0% { 107.8% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1467261	(10.21 , N/A) (N/A , 0.03 , N/A)	633.7	N/A	1.9555 [2.0000]	97.8% { 107.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 301625	(10.62 , N/A) (N/A , 0.01 , N/A)	878.6	N/A	1.8412 [2.0000]	92.1% { 105.0% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 275802	(10.71 , N/A) (N/A , 0.01 , N/A)	1247.5	N/A	1.8237 [2.0000]	91.2% { 90.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (1)
Acquired: 2022/12/22 - 11:01

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) 517996	(9.57 , N/A) (N/A , 0.08 , N/A)	320.8	N/A	3.6698 [4.0000]	91.7% { 98.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 542345	(9.73 , N/A) (N/A , 0.05 , N/A)	435.4	N/A	4.3593 [4.0000]	109.0% { 130.7% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 432794	(10.59 , N/A) (N/A , 0.02 , N/A)	881.6	N/A	18.8149 [20.0000]	94.1% { 99.6% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 200749	(10.69 , N/A) (N/A , 0.01 , N/A)	1035.5	N/A	19.1700 [20.0000]	95.8% { 101.3% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1149495	(6.59 , N/A) (N/A , 0.13 , N/A)	803.1	N/A	7.5481 [8.0000]	94.4% { 94.4% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SB03951
Calibration: 2252011

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

Lab Sample ID	Analyte	Found	Units	RL	C
SB03951-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	0.0142	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: SB03951
Calibration: 2252011

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

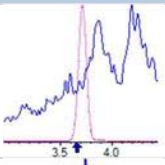
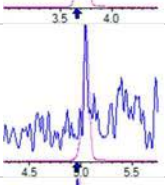
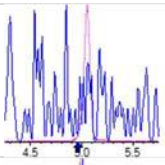
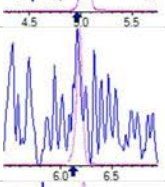
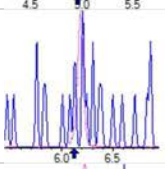
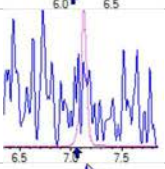
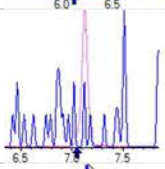
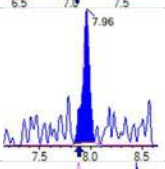
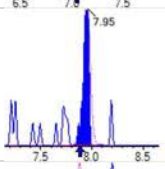
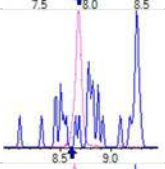
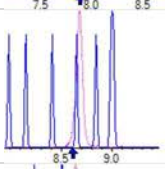
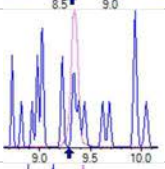
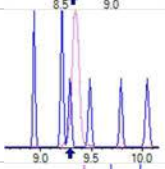
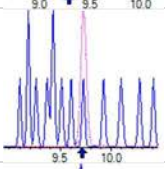
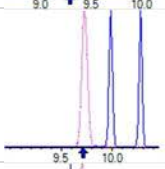
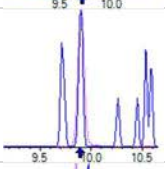
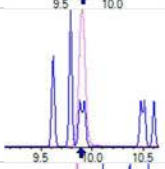
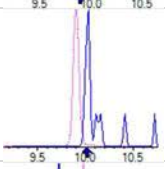
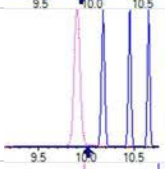
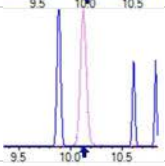
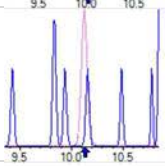
Lab Sample ID	Analyte	Found	Units	RL	C
SB03951-CCB2	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	8.03	ng/mL		
	13C5-PFPEA	4.06	ng/mL		
	13C5-PFHXA	2.01	ng/mL		
	13C4-PFHPA	2.09	ng/mL		
	13C8-PFOA	2.14	ng/mL		
	13C9-PFNA	0.971	ng/mL		
	13C6-PFDA	1.17	ng/mL		
	13C7-PFUnA	0.932	ng/mL		
	13C2-PFDOA	1.05	ng/mL		
	13C2-PFTEDA	1.33	ng/mL		
	13C3-PFBS	2.01	ng/mL		
	13C3-PFHXS	1.96	ng/mL		
	13C8-PFOS	1.98	ng/mL		
	13C2-4:2FTS	3.99	ng/mL		
	13C2-6:2FTS	4.50	ng/mL		
	13C2-8:2FTS	3.56	ng/mL		
	13C8-PFOSA	1.71	ng/mL		
	D5-NETFOSA	1.91	ng/mL		
	D3-NMEFOSA	1.85	ng/mL		
	D3-NMEFOSAA	3.75	ng/mL		
	D5-NETFOSAA	3.70	ng/mL		
	D7-NMEFOSE	18.4	ng/mL		
	D9-NETFOSE	18.5	ng/mL		
	13C3-HFPO-DA	7.76	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (4)
Acquired: 2022/12/22 - 12:04

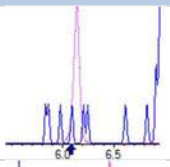
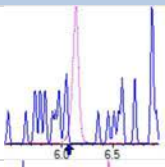
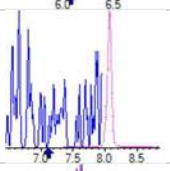
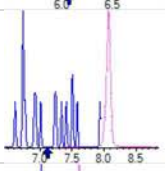
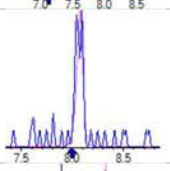
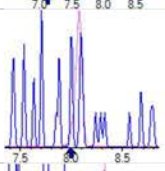
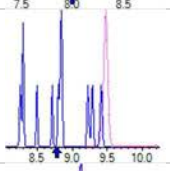
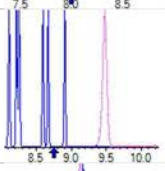
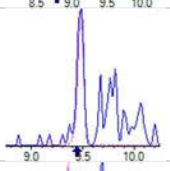
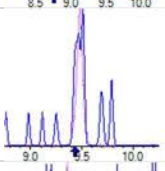
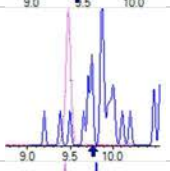
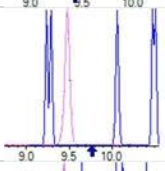
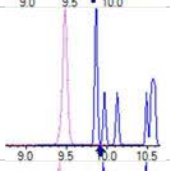
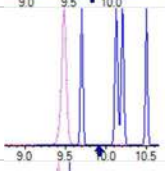
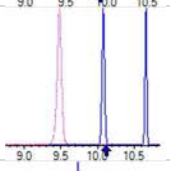
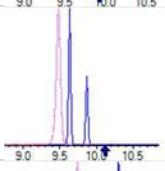
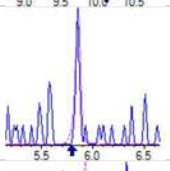
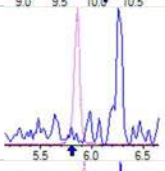
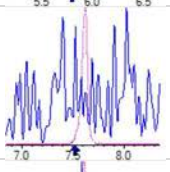
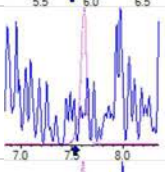
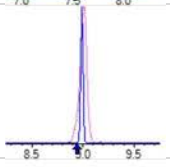
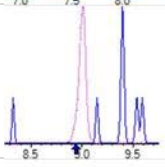
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) N/A (262.9 / 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) 4232 (413.0 / 169.0) 1324	(7.96 , 1.00) (0.00 , N/A , 0.7)	18.2 24.9	0.3129 95.7 105.8	0.0142	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (4)
Acquired: 2022/12/22 - 12:04

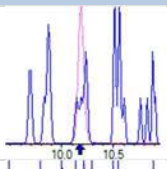
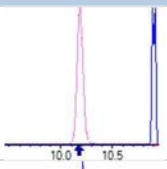
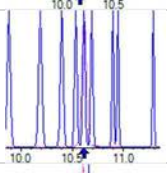
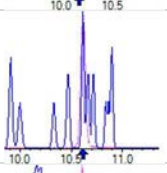
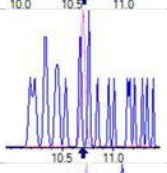
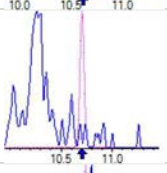
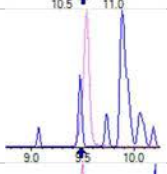
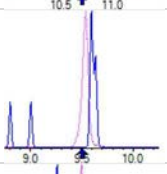
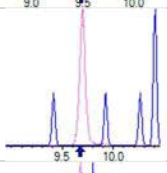
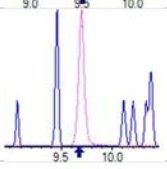
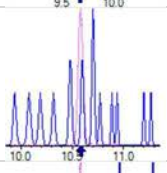
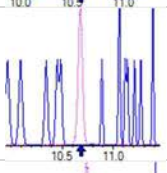
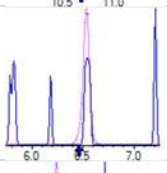
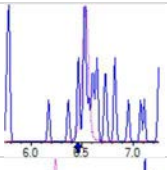
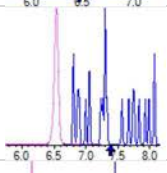
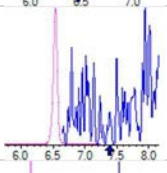
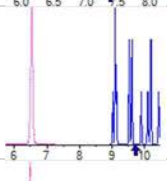
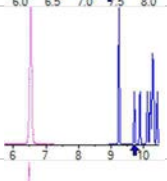
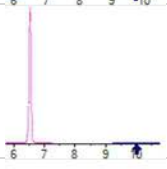
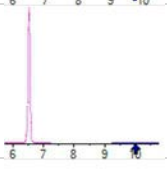
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) N/A (298.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (4)
Acquired: 2022/12/22 - 12:04

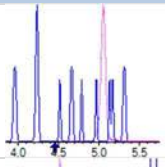
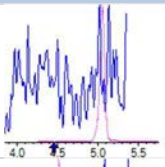
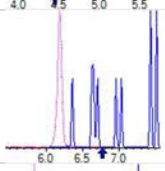
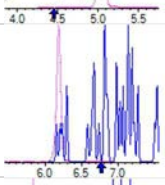
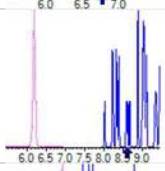
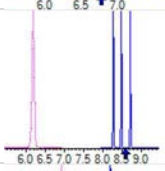
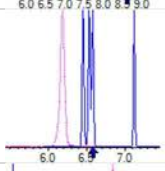
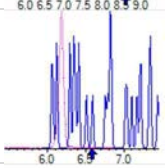
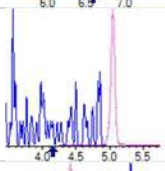
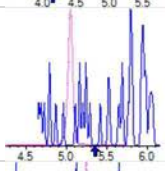
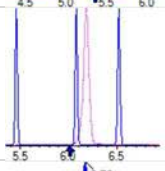
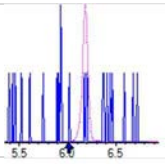
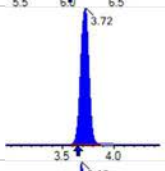
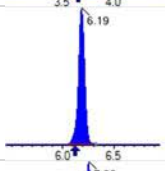
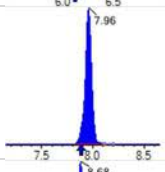
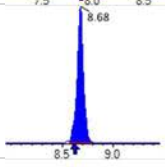
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (4)
Acquired: 2022/12/22 - 12:04

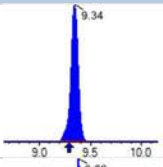
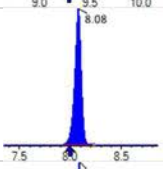
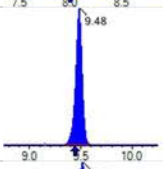
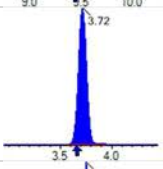
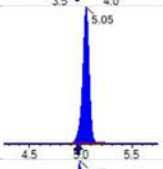
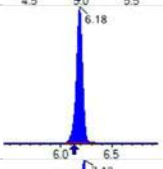
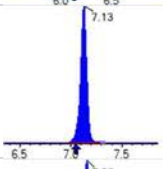
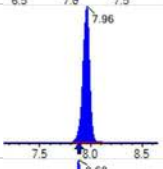
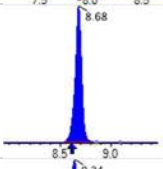
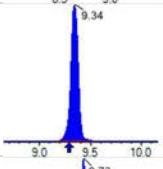
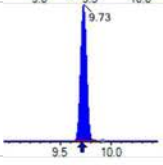
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 157383	(3.72 , N/A) (N/A , 0.06 , N/A)	696.8	N/A	1.1307 [1.0000]	113.1% { 100.2% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 252369	(6.19 , N/A) (N/A , 0.06 , N/A)	857.5	N/A	1.0929 [1.0000]	109.3% { 107.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 257792	(7.96 , N/A) (N/A , 0.08 , N/A)	612.7	N/A	1.1726 [1.0000]	117.3% { 100.4% }			
13C5_PFNA_IIS	(468.0 / 423.0) 219901	(8.68 , N/A) (N/A , 0.06 , N/A)	417.5	N/A	1.1875 [1.0000]	118.7% { 93.8% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (4)
Acquired: 2022/12/22 - 12:04

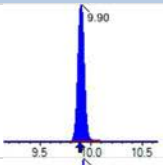
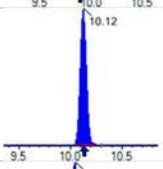
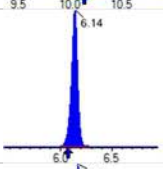
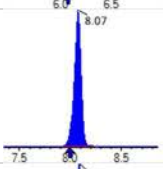
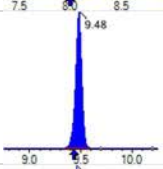
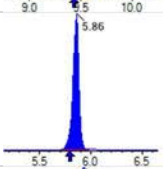
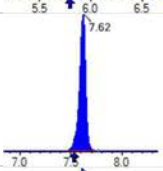
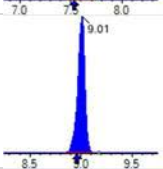
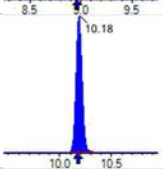
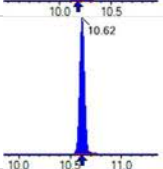
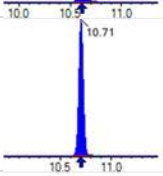
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 194470	(9.34 , N/A) (N/A , 0.05 , N/A)	1231.2	N/A	1.0523 [1.0000]	105.2% { 103.9% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 445410	(8.08 , N/A) (N/A , 0.08 , N/A)	659.9	N/A	1.1033 [1.0000]	110.3% { 99.8% }			
13C4_PFOS_IIS	(502.8 / 79.9) 387697	(9.48 , N/A) (N/A , 0.04 , N/A)	440.2	N/A	1.2147 [1.0000]	121.5% { 111.9% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1300929	(3.72 , N/A) (N/A , 0.06 , N/A)	767.7	N/A	8.0313 [8.0000]	100.4% { 103.6% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 713599	(5.05 , N/A) (N/A , 0.08 , N/A)	621.4	N/A	4.0639 [4.0000]	101.6% { 105.0% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 583357	(6.18 , N/A) (N/A , 0.06 , N/A)	693.5	N/A	2.0087 [2.0000]	100.4% { 108.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 528761	(7.13 , N/A) (N/A , 0.07 , N/A)	588.0	N/A	2.0871 [2.0000]	104.4% { 117.6% }			
13C8_PFOA_EIS	(421.0 / 376.0) 604312	(7.96 , N/A) (N/A , 0.08 , N/A)	788.5	N/A	2.1376 [2.0000]	106.9% { 101.5% }			
13C9_PFNA_EIS	(472.0 / 427.0) 234804	(8.68 , N/A) (N/A , 0.07 , N/A)	394.8	N/A	0.9710 [1.0000]	97.1% { 101.3% }			
13C6_PFDA_EIS	(519.0 / 474.0) 323181	(9.34 , N/A) (N/A , 0.05 , N/A)	578.9	N/A	1.1685 [1.0000]	116.8% { 117.4% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 366574	(9.73 , N/A) (N/A , 0.02 , N/A)	464.6	N/A	0.9318 [1.0000]	93.2% { 98.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (4)
Acquired: 2022/12/22 - 12:04

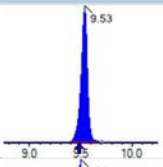
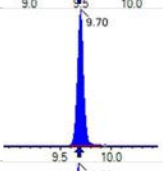
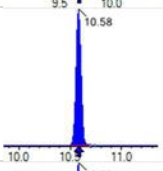
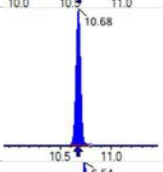
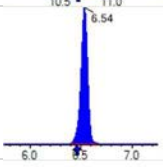
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 413637	(9.90 , N/A) (N/A , 0.01 , N/A)	568.3	N/A	1.0534 [1.0000]	105.3% { 112.9% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 345583	(10.12 , N/A) (N/A , 0.01 , N/A)	442.4	N/A	1.3252 [1.0000]	132.5% { 135.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1514699	(6.14 , N/A) (N/A , 0.07 , N/A)	700.0	N/A	2.0113 [2.0000]	100.6% { 113.7% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 785408	(8.07 , N/A) (N/A , 0.08 , N/A)	749.1	N/A	1.9602 [2.0000]	98.0% { 102.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1314600	(9.48 , N/A) (N/A , 0.05 , N/A)	422.0	N/A	1.9757 [2.0000]	98.8% { 117.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 254483	(5.86 , N/A) (N/A , 0.07 , N/A)	572.1	N/A	3.9898 [4.0000]	99.7% { 113.1% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 345555	(7.62 , N/A) (N/A , 0.09 , N/A)	723.1	N/A	4.4998 [4.0000]	112.5% { 102.7% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 273673	(9.01 , N/A) (N/A , 0.06 , N/A)	502.0	N/A	3.5600 [4.0000]	89.0% { 86.6% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1435560	(10.18 , N/A) (N/A , 0.01 , N/A)	732.1	N/A	1.7068 [2.0000]	85.3% { 105.2% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 340399	(10.62 , N/A) (N/A , 0.01 , N/A)	957.6	N/A	1.8536 [2.0000]	92.7% { 118.5% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 323757	(10.71 , N/A) (N/A , 0.01 , N/A)	1137.1	N/A	1.9098 [2.0000]	95.5% { 106.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB2
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (4)
Acquired: 2022/12/22 - 12:04

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 592584	(9.53 , N/A) (N/A , 0.05 , N/A)	373.2	N/A	3.7452 [4.0000]	93.6% { 112.1% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 516480	(9.70 , N/A) (N/A , 0.02 , N/A)	600.1	N/A	3.7034 [4.0000]	92.6% { 124.5% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 475480	(10.58 , N/A) (N/A , 0.01 , N/A)	887.6	N/A	18.4400 [20.0000]	92.2% { 109.4% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 216790	(10.68 , N/A) (N/A , 0.00 , N/A)	1384.1	N/A	18.4679 [20.0000]	92.3% { 109.4% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1198119	(6.54 , N/A) (N/A , 0.07 , N/A)	1140.6	N/A	7.7594 [8.0000]	97.0% { 98.4% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SB03951
Calibration: 2252011

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

Lab Sample ID	Analyte	Found	Units	RL	C
SB03951-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	0.0201	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: SB03951
Calibration: 2252011

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

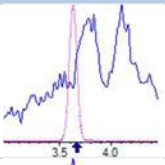
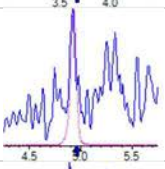
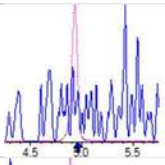
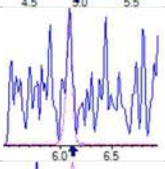
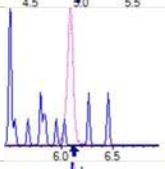
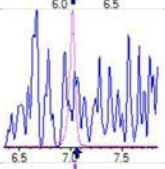
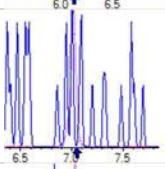
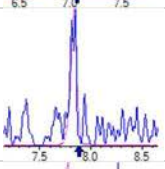
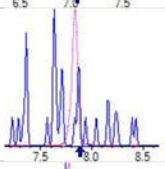
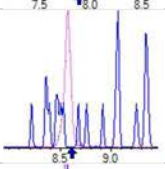
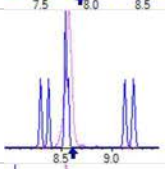
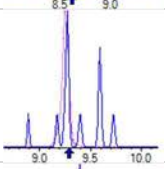
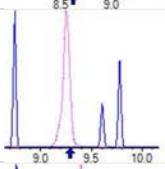
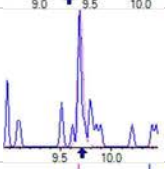
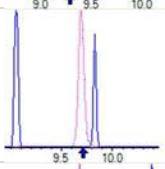
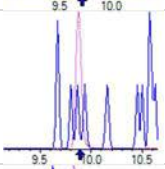
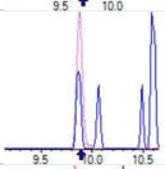
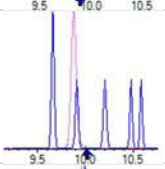
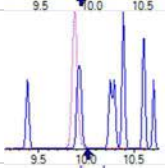
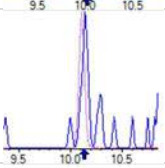
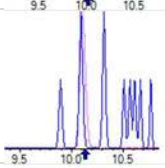
Lab Sample ID	Analyte	Found	Units	RL	C
SB03951-CCB3	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	7.93	ng/mL		
	13C5-PFPEA	4.27	ng/mL		
	13C5-PFHXA	2.01	ng/mL		
	13C4-PFHPA	2.09	ng/mL		
	13C8-PFOA	2.07	ng/mL		
	13C9-PFNA	0.975	ng/mL		
	13C6-PFDA	1.10	ng/mL		
	13C7-PFUnA	1.06	ng/mL		
	13C2-PFDOA	1.10	ng/mL		
	13C2-PFTEDA	1.25	ng/mL		
	13C3-PFBS	2.05	ng/mL		
	13C3-PFHXS	2.02	ng/mL		
	13C8-PFOS	1.64	ng/mL		
	13C2-4:2FTS	3.48	ng/mL		
	13C2-6:2FTS	4.47	ng/mL		
	13C2-8:2FTS	3.96	ng/mL		
	13C8-PFOSA	1.65	ng/mL		
	D5-NETFOSA	1.62	ng/mL		
	D3-NMEFOSA	1.66	ng/mL		
	D3-NMEFOSAA	2.77	ng/mL		
	D5-NETFOSAA	2.63	ng/mL		
	D7-NMEFOSE	17.0	ng/mL		
	D9-NETFOSE	18.6	ng/mL		
	13C3-HFPO-DA	8.35	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (17)
Acquired: 2022/12/22 - 14:50

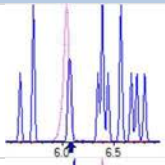
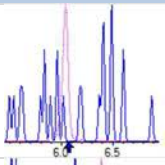
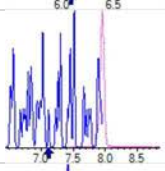
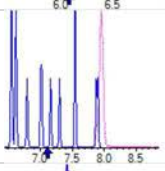
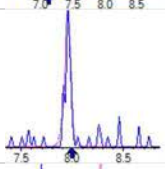
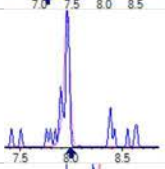
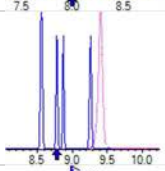
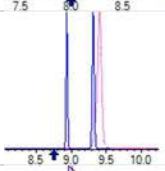
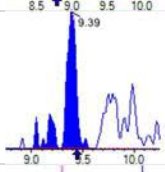
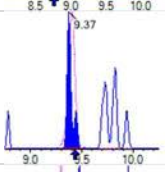
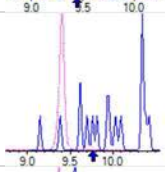
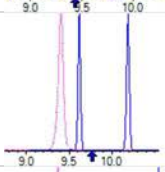
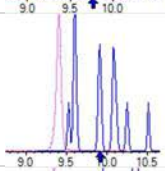
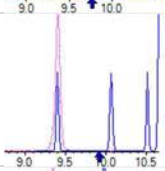
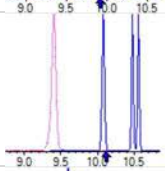
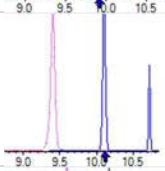
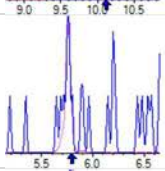
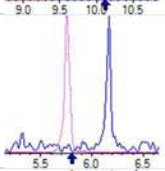
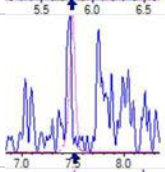
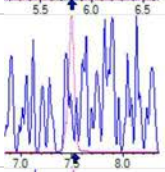
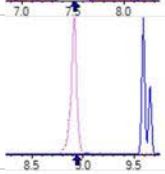
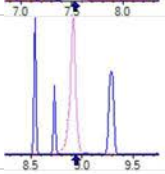
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) N/A (262.9 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (17)
Acquired: 2022/12/22 - 14:50

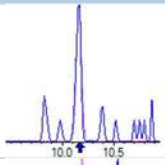
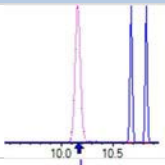
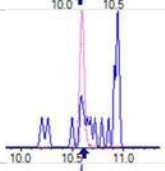
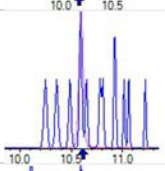
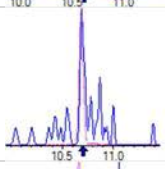
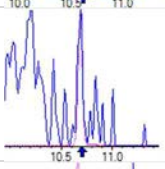
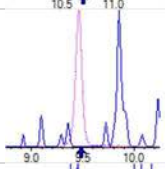
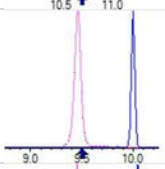
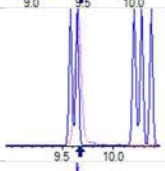
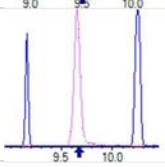
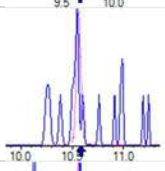
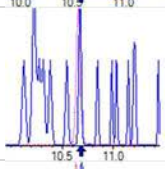
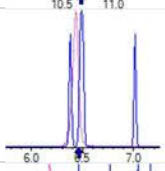
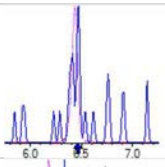
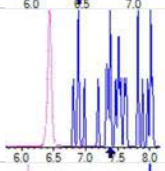
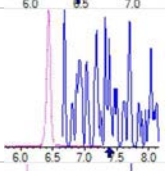
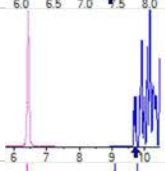
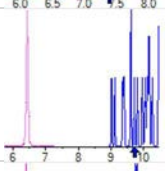
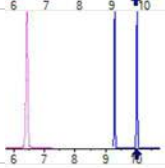
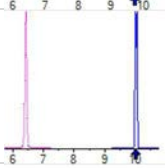
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) N/A (298.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 13162 (499.0 / 99.0) 1431	(9.39 , 1.00) (-0.02 , N/A , 0.9)	280.3 18.3	0.1087 44.7 47.5	0.0201	N/A			IR1,
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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (17)
Acquired: 2022/12/22 - 14:50

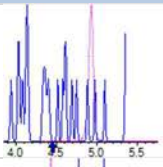
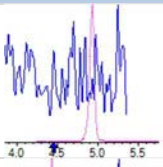
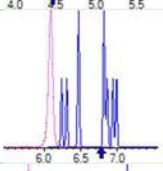
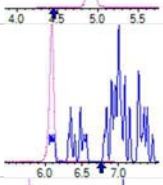
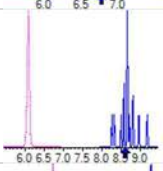
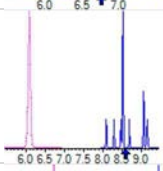
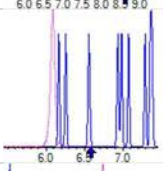
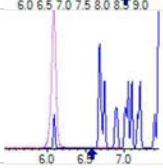
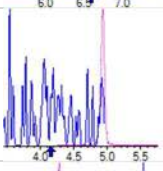
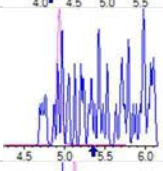
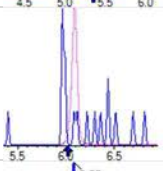
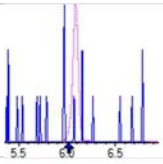
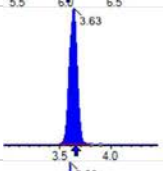
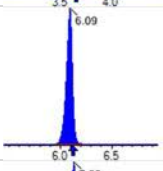
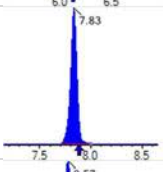
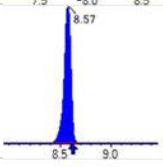
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (17)
Acquired: 2022/12/22 - 14:50

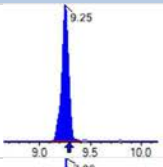
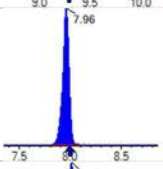
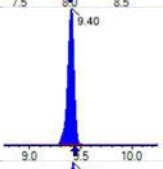
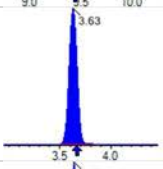
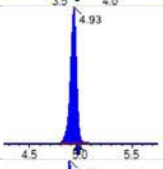
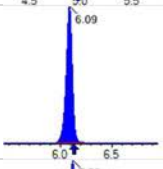
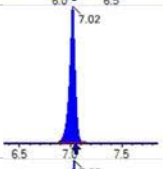
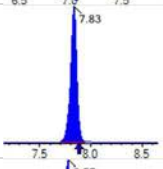
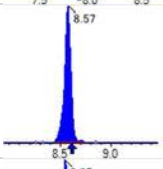
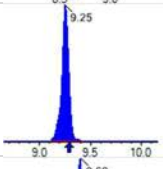
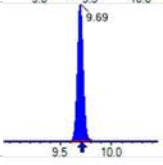
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 173488	(3.63 , N/A) (N/A , -0.02 , N/A)	742.6	N/A	1.2464 [1.0000]	124.6% { 110.5% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 254864	(6.09 , N/A) (N/A , -0.03 , N/A)	650.0	N/A	1.1037 [1.0000]	110.4% { 108.0% }			
13C4_PFOA_IIS	(417.0 / 372.0) 250555	(7.83 , N/A) (N/A , -0.04 , N/A)	680.9	N/A	1.1397 [1.0000]	114.0% { 97.5% }			
13C5_PFNA_IIS	(468.0 / 423.0) 219676	(8.57 , N/A) (N/A , -0.04 , N/A)	682.2	N/A	1.1863 [1.0000]	118.6% { 93.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (17)
Acquired: 2022/12/22 - 14:50

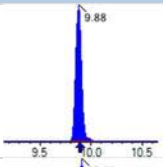
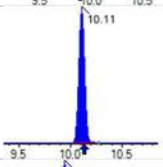
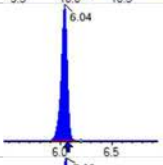
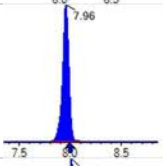
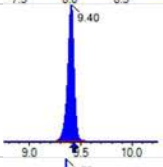
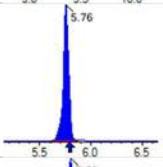
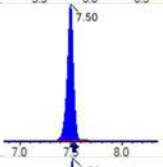
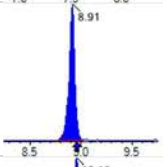
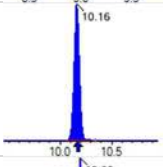
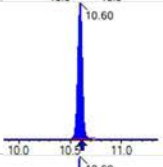
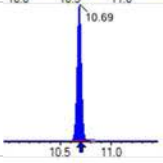
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 182295	(9.25 , N/A) (N/A , -0.04 , N/A)	401.5	N/A	0.9864 [1.0000]	98.6% { 97.4% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 434358	(7.96 , N/A) (N/A , -0.04 , N/A)	829.4	N/A	1.0759 [1.0000]	107.6% { 97.3% }			
13C4_PFOS_IIS	(502.8 / 79.9) 428768	(9.40 , N/A) (N/A , -0.03 , N/A)	464.1	N/A	1.3433 [1.0000]	134.3% { 123.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1415484	(3.63 , N/A) (N/A , -0.02 , N/A)	954.9	N/A	7.9274 [8.0000]	99.1% { 112.7% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 757997	(4.93 , N/A) (N/A , -0.04 , N/A)	803.7	N/A	4.2745 [4.0000]	106.9% { 111.5% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 588987	(6.09 , N/A) (N/A , -0.04 , N/A)	798.1	N/A	2.0082 [2.0000]	100.4% { 109.9% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 534343	(7.02 , N/A) (N/A , -0.03 , N/A)	708.2	N/A	2.0884 [2.0000]	104.4% { 118.8% }			
13C8_PFOA_EIS	(421.0 / 376.0) 567503	(7.83 , N/A) (N/A , -0.04 , N/A)	575.2	N/A	2.0653 [2.0000]	103.3% { 95.3% }			
13C9_PFNA_EIS	(472.0 / 427.0) 235412	(8.57 , N/A) (N/A , -0.04 , N/A)	345.2	N/A	0.9745 [1.0000]	97.5% { 101.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 285247	(9.25 , N/A) (N/A , -0.03 , N/A)	571.8	N/A	1.1002 [1.0000]	110.0% { 103.7% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 390930	(9.69 , N/A) (N/A , -0.02 , N/A)	467.7	N/A	1.0601 [1.0000]	106.0% { 105.1% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (17)
Acquired: 2022/12/22 - 14:50

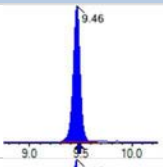
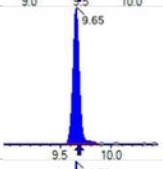
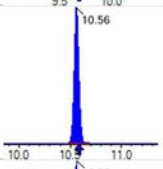
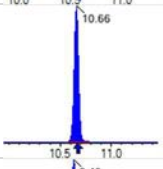
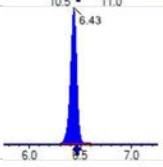
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 404037	(9.88 , N/A) (N/A , -0.02 , N/A)	828.2	N/A	1.0977 [1.0000]	109.8% { 110.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 306344	(10.11 , N/A) (N/A , -0.01 , N/A)	537.0	N/A	1.2532 [1.0000]	125.3% { 120.0% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1508652	(6.04 , N/A) (N/A , -0.03 , N/A)	669.5	N/A	2.0543 [2.0000]	102.7% { 113.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 789666	(7.96 , N/A) (N/A , -0.04 , N/A)	856.2	N/A	2.0209 [2.0000]	101.0% { 102.8% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1205476	(9.40 , N/A) (N/A , -0.03 , N/A)	441.0	N/A	1.6382 [2.0000]	81.9% { 107.9% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 216699	(5.76 , N/A) (N/A , -0.03 , N/A)	577.8	N/A	3.4838 [4.0000]	87.1% { 96.3% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 334424	(7.50 , N/A) (N/A , -0.03 , N/A)	627.3	N/A	4.4657 [4.0000]	111.6% { 99.4% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 296806	(8.91 , N/A) (N/A , -0.03 , N/A)	445.0	N/A	3.9592 [4.0000]	99.0% { 93.9% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1536538	(10.16 , N/A) (N/A , -0.01 , N/A)	585.2	N/A	1.6519 [2.0000]	82.6% { 112.6% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 337118	(10.60 , N/A) (N/A , -0.01 , N/A)	675.8	N/A	1.6599 [2.0000]	83.0% { 117.4% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 304556	(10.69 , N/A) (N/A , -0.01 , N/A)	1006.9	N/A	1.6245 [2.0000]	81.2% { 100.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB3
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (17)
Acquired: 2022/12/22 - 14:50

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) 484524	(9.46 , N/A) (N/A , -0.03 , N/A)	335.2	N/A	2.7689 [4.0000]	69.2% { 91.7% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 405638	(9.65 , N/A) (N/A , -0.03 , N/A)	276.4	N/A	2.6300 [4.0000]	65.8% { 97.8% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 485706	(10.56 , N/A) (N/A , -0.01 , N/A)	1046.7	N/A	17.0323 [20.0000]	85.2% { 111.7% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 241914	(10.66 , N/A) (N/A , -0.01 , N/A)	1400.0	N/A	18.6341 [20.0000]	93.2% { 122.1% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1301587	(6.43 , N/A) (N/A , -0.03 , N/A)	722.9	N/A	8.3470 [8.0000]	104.3% { 106.9% }			

ANALYSIS SEQUENCE BLANKS

Laboratory: APPL, LLC
Client: AECOM
Sequence: SB03951
Calibration: 2252011

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

Lab Sample ID	Analyte	Found	Units	RL	C
SB03951-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	0.0122	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: SB03951
Calibration: 2252011

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

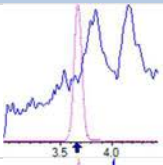
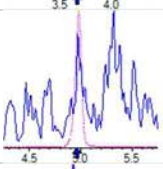
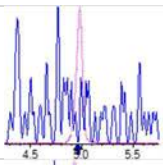
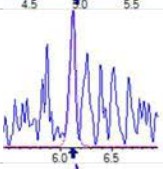
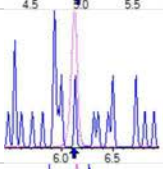
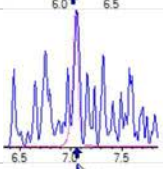
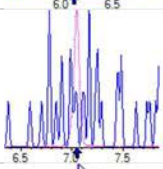
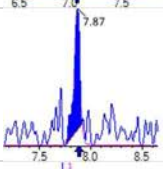
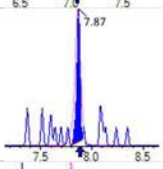
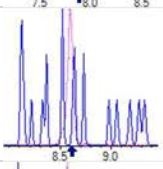
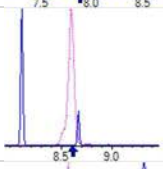
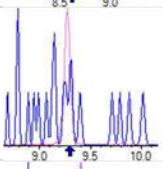
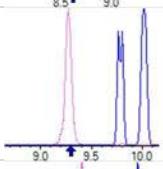
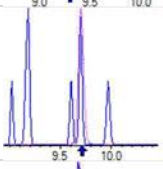
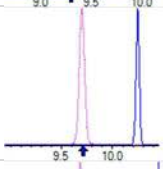
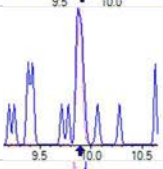
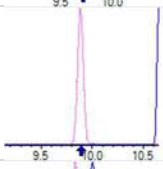
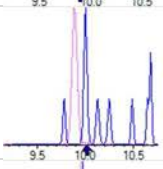
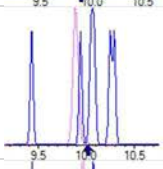
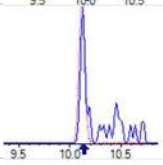
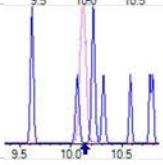
Lab Sample ID	Analyte	Found	Units	RL	C
SB03951-CCB4	PFMBA	0.00	ng/mL	0.20	U
	NFDHA	0.00	ng/mL	0.20	U
	9CL-PF3ONS	0.00	ng/mL	0.20	U
	11CL-PF3OUDS	0.00	ng/mL	0.20	U
	3:3FTCA	0.00	ng/mL	0.40	U
	5:3FTCA	0.00	ng/mL	0.40	U
	7:3FTCA	0.00	ng/mL	0.40	U
	13C4-PFBA	7.93	ng/mL		
	13C5-PFPEA	4.21	ng/mL		
	13C5-PFHXA	2.03	ng/mL		
	13C4-PFHPA	2.13	ng/mL		
	13C8-PFOA	2.06	ng/mL		
	13C9-PFNA	0.970	ng/mL		
	13C6-PFDA	1.19	ng/mL		
	13C7-PFUnA	1.09	ng/mL		
	13C2-PFDOA	1.12	ng/mL		
	13C2-PFTEDA	1.21	ng/mL		
	13C3-PFBS	2.08	ng/mL		
	13C3-PFHXS	1.95	ng/mL		
	13C8-PFOS	1.91	ng/mL		
	13C2-4:2FTS	3.78	ng/mL		
	13C2-6:2FTS	3.67	ng/mL		
	13C2-8:2FTS	3.69	ng/mL		
	13C8-PFOSA	2.05	ng/mL		
	D5-NETFOSA	2.08	ng/mL		
	D3-NMEFOSA	1.93	ng/mL		
	D3-NMEFOSAA	3.55	ng/mL		
	D5-NETFOSAA	3.75	ng/mL		
	D7-NMEFOSE	20.6	ng/mL		
	D9-NETFOSE	21.6	ng/mL		
	13C3-HFPO-DA	8.16	ng/mL		

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (34)
Acquired: 2022/12/22 - 18:25

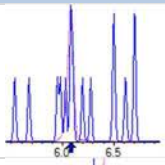
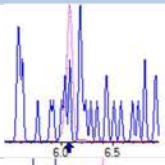
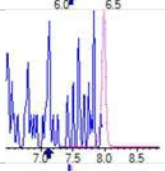
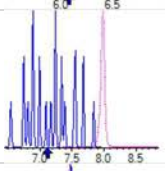
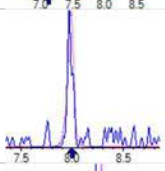
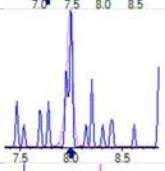
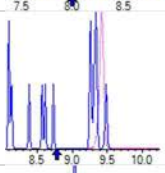
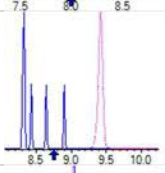
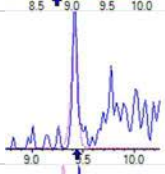
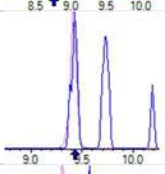
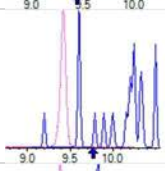
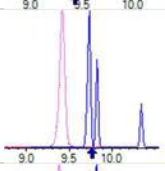
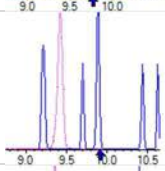
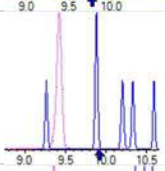
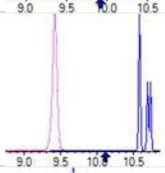
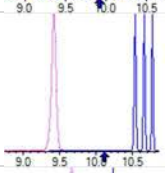
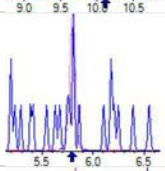
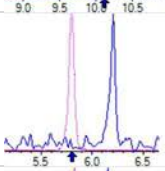
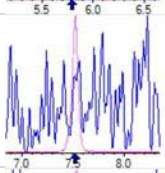
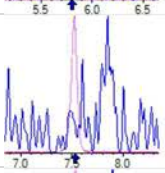
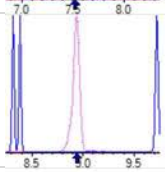
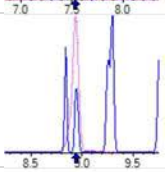
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) N/A (262.9 / 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) 3469 (413.0 / 169.0) 814	(7.87 , 1.00) (0.01 , N/A , -0.1)	15.7 26.2	0.2347 71.8 79.3	0.0122	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (34)
Acquired: 2022/12/22 - 18:25

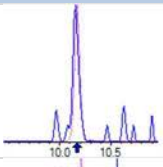
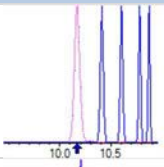
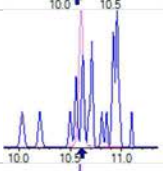
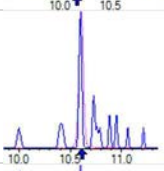
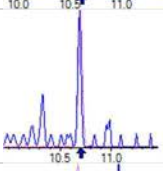
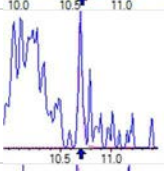
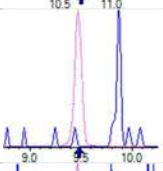
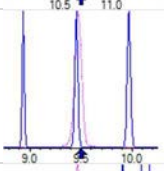
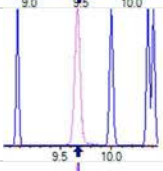
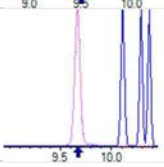
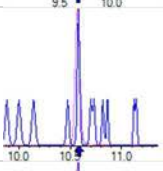
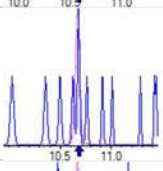
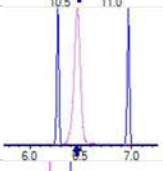
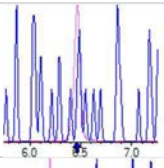
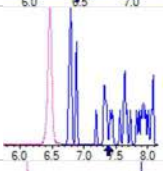
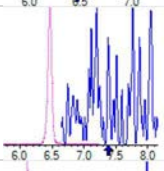
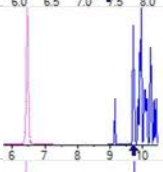
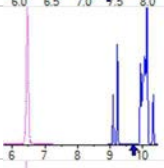
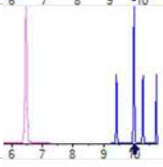
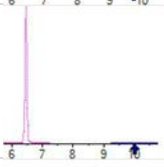
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) N/A (298.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (34)
Acquired: 2022/12/22 - 18:25

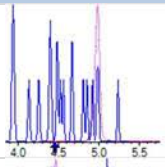
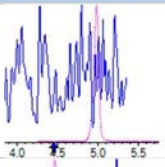
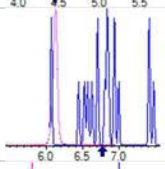
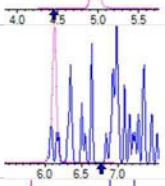
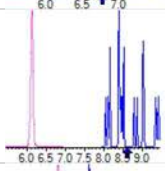
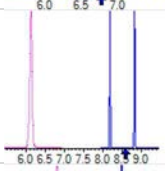
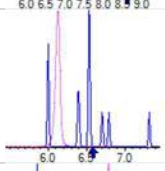
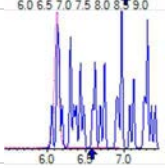
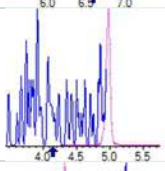
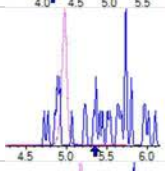
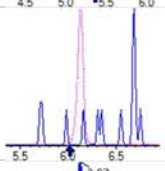
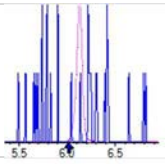
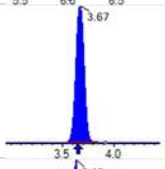
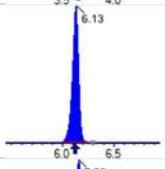
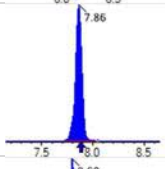
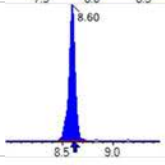
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (34)
Acquired: 2022/12/22 - 18:25

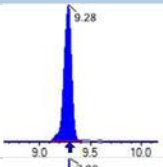
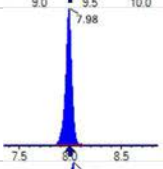
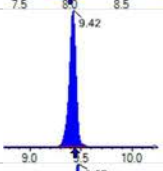
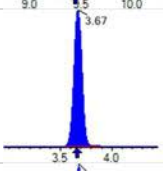
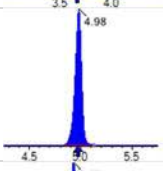
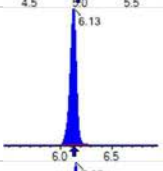
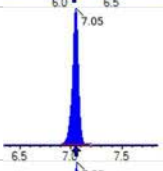
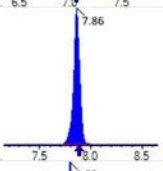
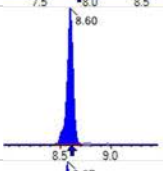
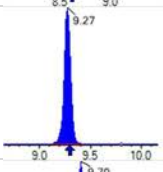
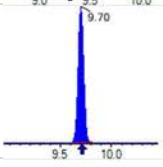
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 170566	(3.67 , N/A) (N/A , 0.02 , N/A)	728.5	N/A	1.2254 [1.0000]	122.5% { 108.6% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 251402	(6.13 , N/A) (N/A , 0.01 , N/A)	635.5	N/A	1.0887 [1.0000]	108.9% { 106.5% }			
13C4_PFOA_IIS	(417.0 / 372.0) 256265	(7.86 , N/A) (N/A , -0.01 , N/A)	618.6	N/A	1.1656 [1.0000]	116.6% { 99.8% }			
13C5_PFNA_IIS	(468.0 / 423.0) 208621	(8.60 , N/A) (N/A , -0.02 , N/A)	429.5	N/A	1.1266 [1.0000]	112.7% { 88.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (34)
Acquired: 2022/12/22 - 18:25

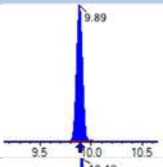
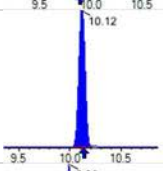
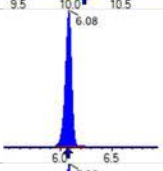
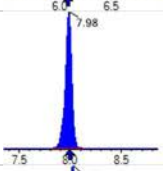
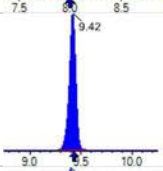
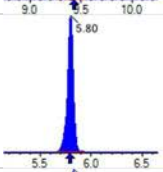
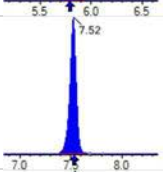
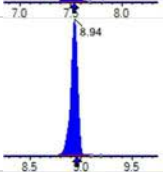
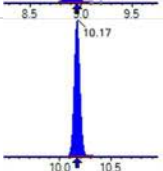
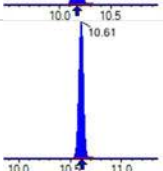
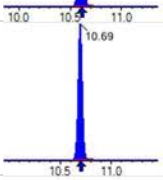
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 194804	(9.28 , N/A) (N/A , -0.01 , N/A)	302.4	N/A	1.0541 [1.0000]	105.4% { 104.1% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 458277	(7.98 , N/A) (N/A , -0.01 , N/A)	902.1	N/A	1.1352 [1.0000]	113.5% { 102.7% }			
13C4_PFOS_IIS	(502.8 / 79.9) 396363	(9.42 , N/A) (N/A , -0.02 , N/A)	445.6	N/A	1.2418 [1.0000]	124.2% { 114.4% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1391613	(3.67 , N/A) (N/A , 0.02 , N/A)	736.2	N/A	7.9272 [8.0000]	99.1% { 110.8% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 736201	(4.98 , N/A) (N/A , 0.01 , N/A)	907.0	N/A	4.2087 [4.0000]	105.2% { 108.3% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 587964	(6.13 , N/A) (N/A , 0.00 , N/A)	539.2	N/A	2.0323 [2.0000]	101.6% { 109.7% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 537138	(7.05 , N/A) (N/A , 0.00 , N/A)	514.9	N/A	2.1283 [2.0000]	106.4% { 119.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 578390	(7.86 , N/A) (N/A , -0.01 , N/A)	833.5	N/A	2.0581 [2.0000]	102.9% { 97.1% }			
13C9_PFNA_EIS	(472.0 / 427.0) 222417	(8.60 , N/A) (N/A , -0.01 , N/A)	471.8	N/A	0.9695 [1.0000]	97.0% { 96.0% }			
13C6_PFDA_EIS	(519.0 / 474.0) 330961	(9.27 , N/A) (N/A , -0.02 , N/A)	504.0	N/A	1.1945 [1.0000]	119.5% { 120.3% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 429552	(9.70 , N/A) (N/A , -0.01 , N/A)	940.6	N/A	1.0900 [1.0000]	109.0% { 115.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (34)
Acquired: 2022/12/22 - 18:25

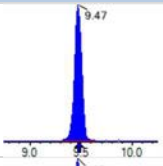
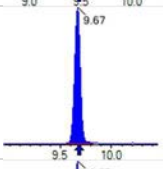
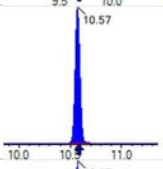
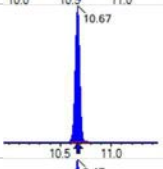
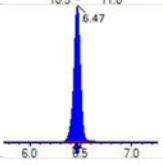
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 440640	(9.89 , N/A) (N/A , -0.01 , N/A)	593.1	N/A	1.1202 [1.0000]	112.0% { 120.3% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 315877	(10.12 , N/A) (N/A , 0.00 , N/A)	615.3	N/A	1.2092 [1.0000]	120.9% { 123.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1610648	(6.08 , N/A) (N/A , 0.01 , N/A)	595.6	N/A	2.0787 [2.0000]	103.9% { 120.9% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 802676	(7.98 , N/A) (N/A , -0.01 , N/A)	923.8	N/A	1.9470 [2.0000]	97.4% { 104.5% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1299719	(9.42 , N/A) (N/A , -0.01 , N/A)	497.2	N/A	1.9106 [2.0000]	95.5% { 116.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 248363	(5.80 , N/A) (N/A , 0.01 , N/A)	708.4	N/A	3.7845 [4.0000]	94.6% { 110.3% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 290113	(7.52 , N/A) (N/A , -0.01 , N/A)	603.3	N/A	3.6718 [4.0000]	91.8% { 86.3% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 291532	(8.94 , N/A) (N/A , -0.01 , N/A)	348.0	N/A	3.6859 [4.0000]	92.1% { 92.3% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1764289	(10.17 , N/A) (N/A , -0.01 , N/A)	884.4	N/A	2.0518 [2.0000]	102.6% { 129.3% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 362344	(10.61 , N/A) (N/A , 0.00 , N/A)	1087.4	N/A	1.9300 [2.0000]	96.5% { 126.2% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 360485	(10.69 , N/A) (N/A , 0.00 , N/A)	1426.8	N/A	2.0800 [2.0000]	104.0% { 118.6% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: SB03951-CCB4
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (34)
Acquired: 2022/12/22 - 18:25

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 573696	(9.47 , N/A) (N/A , -0.02 , N/A)	344.1	N/A	3.5466 [4.0000]	88.7% { 108.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 534612	(9.67 , N/A) (N/A , -0.01 , N/A)	417.4	N/A	3.7496 [4.0000]	93.7% { 128.8% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 541882	(10.57 , N/A) (N/A , 0.00 , N/A)	1203.6	N/A	20.5558 [20.0000]	102.8% { 124.7% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 259149	(10.67 , N/A) (N/A , 0.00 , N/A)	858.2	N/A	21.5937 [20.0000]	108.0% { 130.8% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1255716	(6.47 , N/A) (N/A , 0.00 , N/A)	711.9	N/A	8.1637 [8.0000]	102.0% { 103.2% }			

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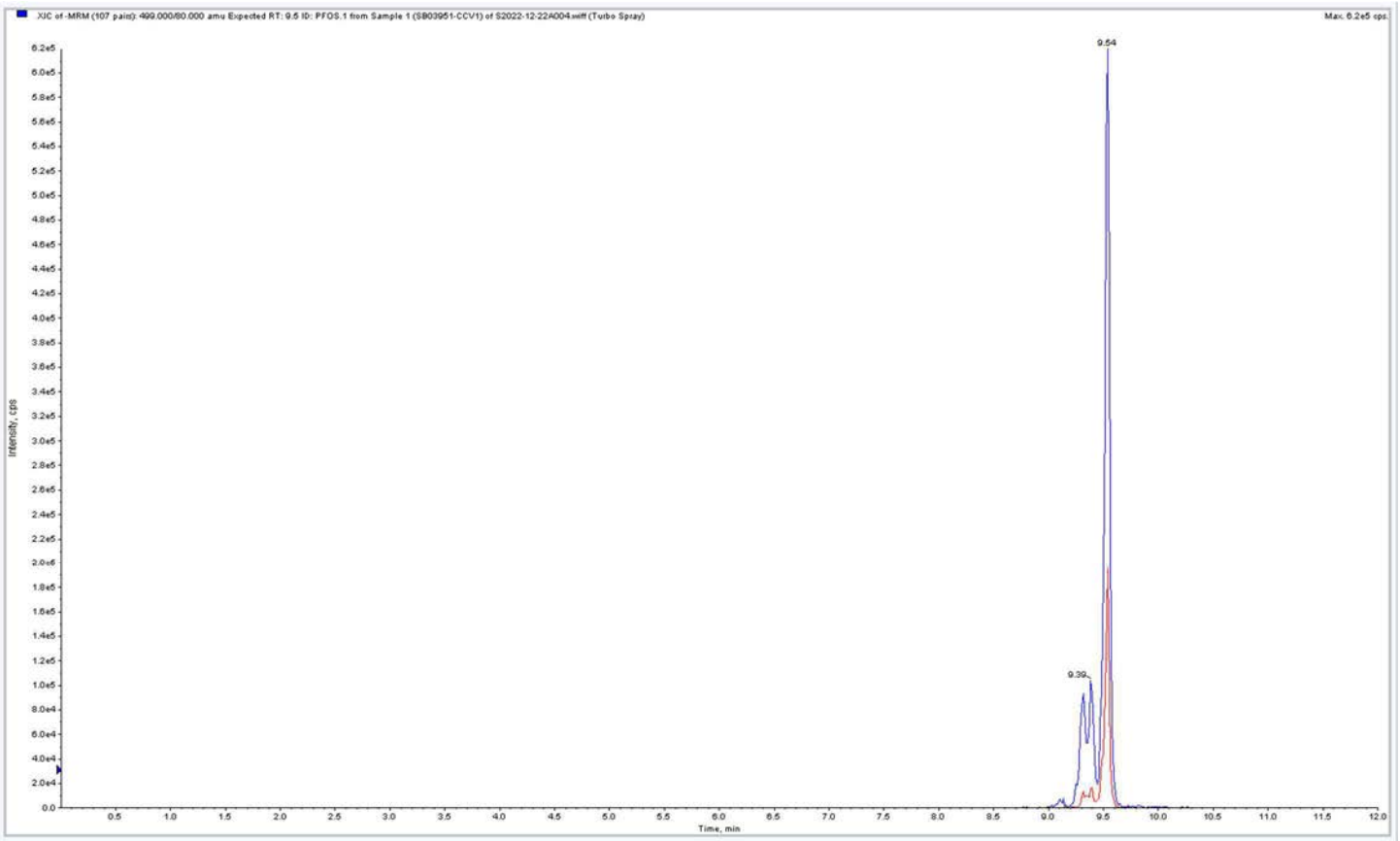
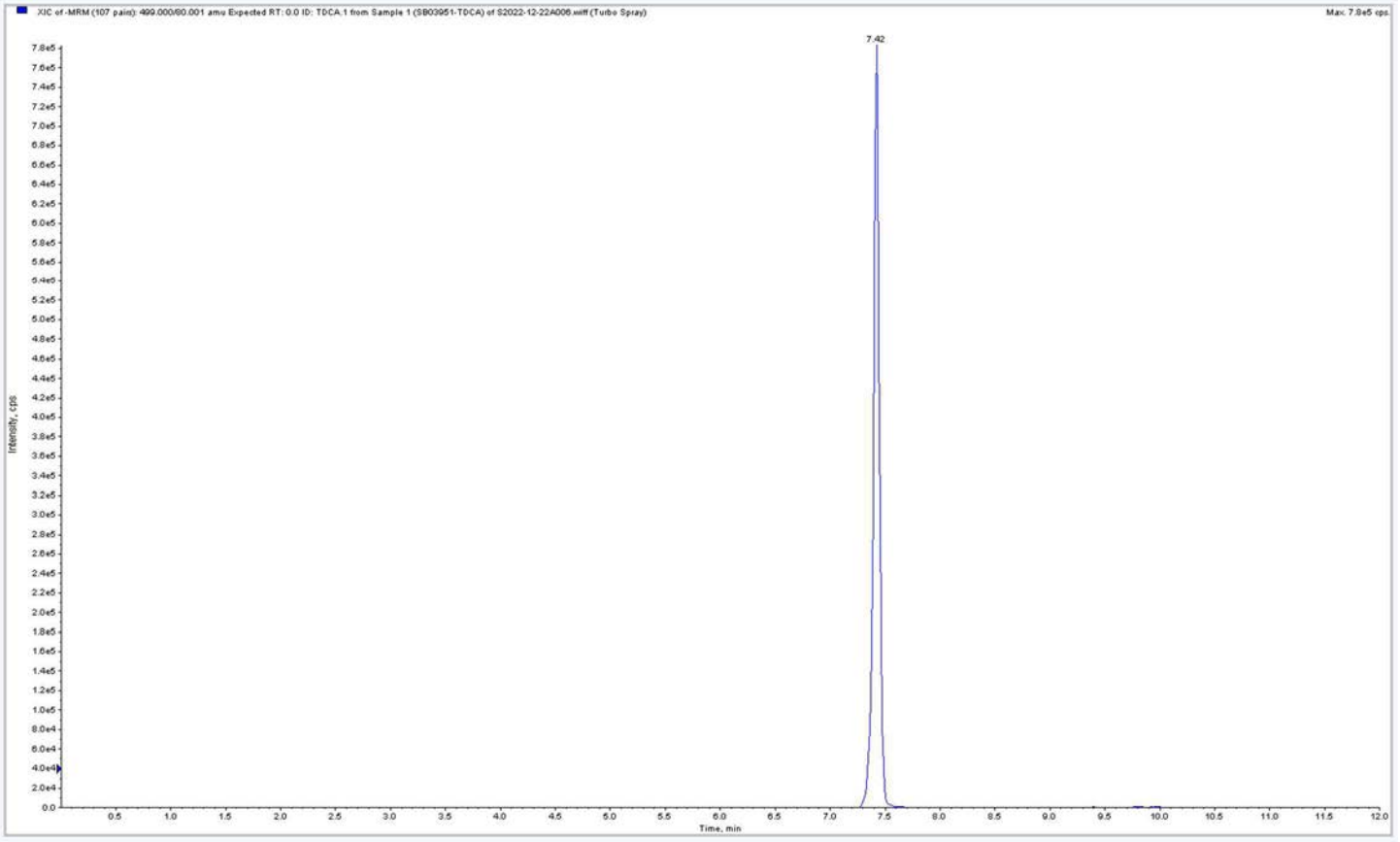
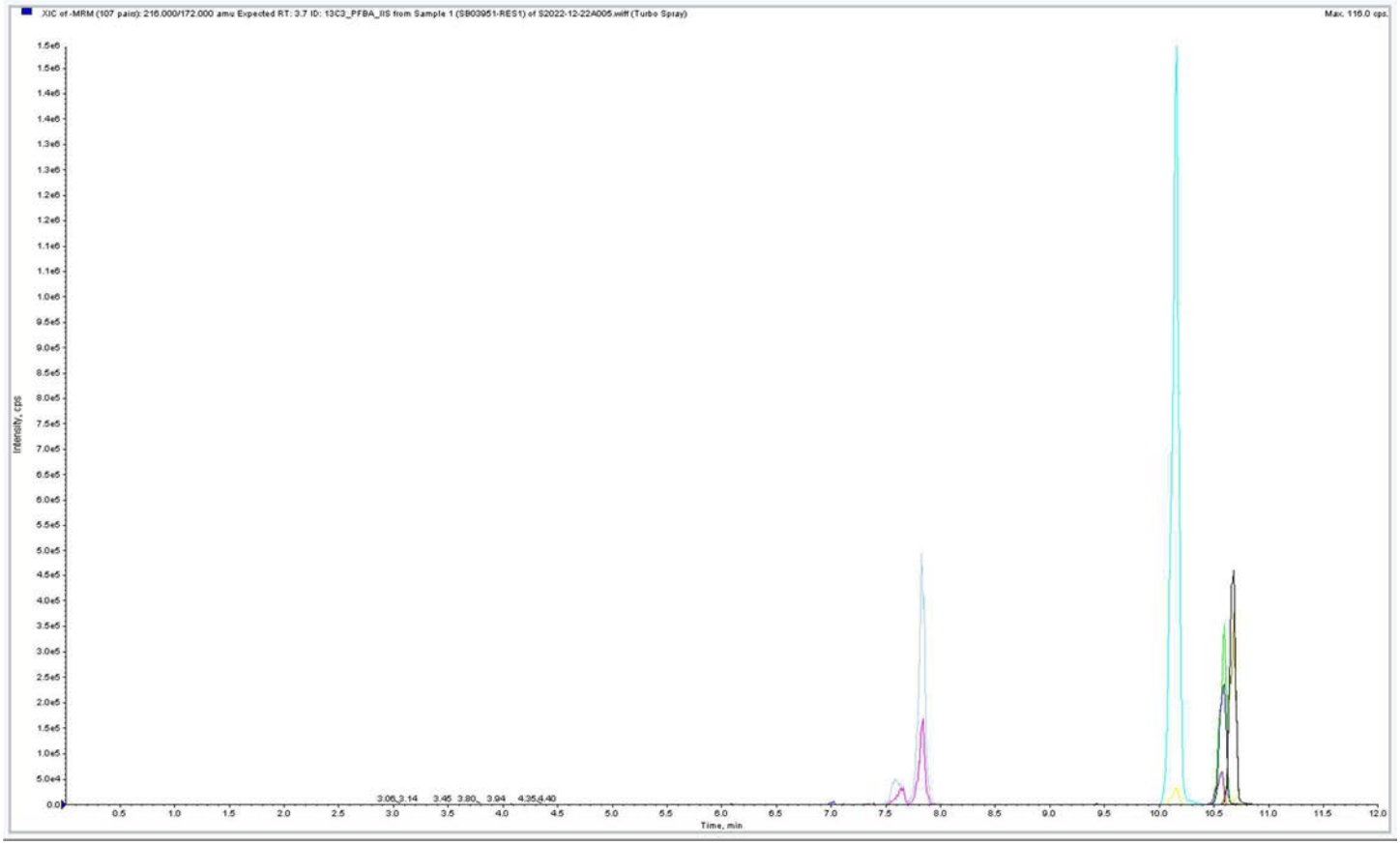
BILE STANDARD CHECK S2022-12-22A/SB03951

TDCA	=	7.42		
PFOS	=	9.12		
TDCA-PFOS	=	1.70	> 1.0	PASS





S2022-12-22A/SB03951 Column Resolution



QUALITY CONTROL RAW DATA

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BBL0403-BLK1	File ID:	S2022-12-22A (18)
Sampled:		Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:02
Solids:		Preparation:	1633	Dilution:	1
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011
Column:	1				Instrument: Saphira

COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
PFBA	0.80 U	1.6	0.80	0.21	U
PFPEA	0.40 U	0.80	0.40	0.065	U
PFHXA	0.20 U	0.40	0.20	0.055	U
PFHPA	0.20 U	0.40	0.20	0.041	U
PFOA	0.20 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	0.0863 J	0.40	0.20	0.064	J
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	[illegible]	[illegible]	[illegible]	U

ANALYSIS DATA SHEET

Blank

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BBL0403-BLK1	File ID:	S2022-12-22A (18)
Sampled:		Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:02
Solids:		Preparation:	1633	Dilution:	1
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011
Column:	1				

Instrument: Saphira

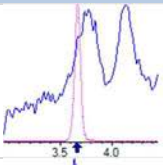
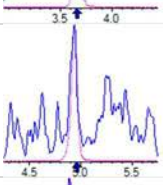
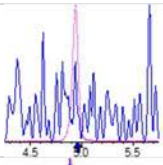
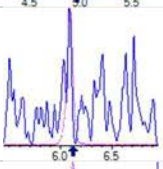
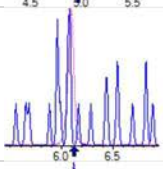
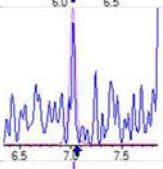
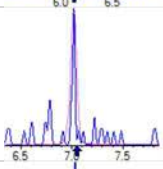
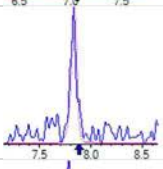
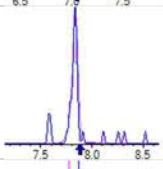
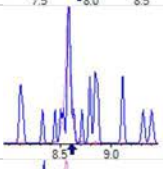
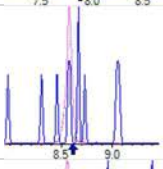
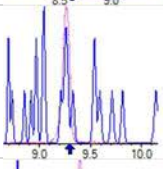
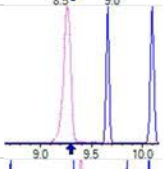
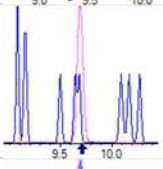
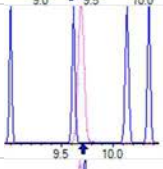
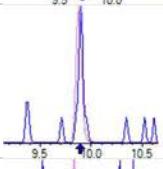
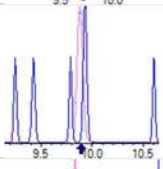
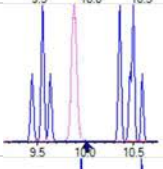
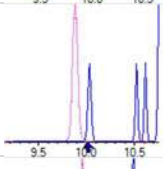
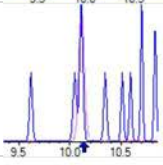
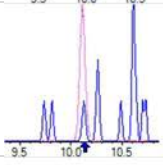
COMPOUND	CONC. (ng/L)	LOQ	LOD	DL	Q
ADONA	0.40 U	0.80	0.40	0.12	U
PFEESA	0.40 U	0.80	0.40	0.11	U
PFMPA	0.40 U	0.80	0.40	0.054	U
PFMBA	0.40 U	0.80	0.40	0.091	U
NFDHA	0.40 U	0.80	0.40	0.30	U
9CL-PF3ONS	0.40 U	0.80	0.40	0.21	U
11CL-PF3OUDS	0.40 U	0.80	0.40	0.21	U
3:3FTCA	0.80 U	1.6	0.80	0.57	U
5:3FTCA	0.80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

Sample I.D.: BBL0403-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (18)
Acquired: 2022/12/22 - 15:02

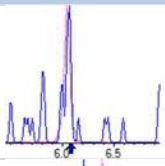
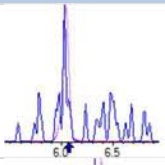
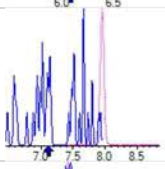
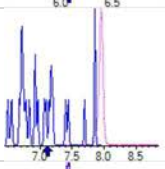
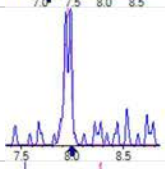
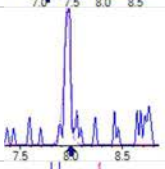
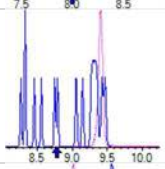
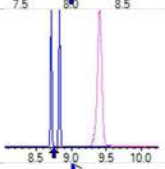
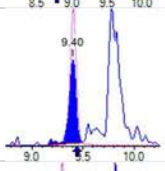
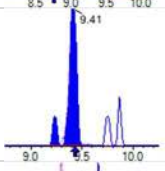
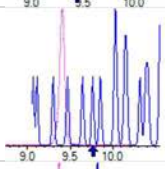
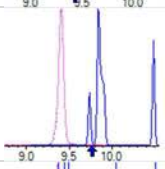
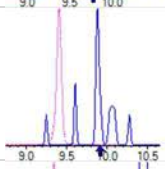
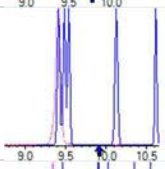
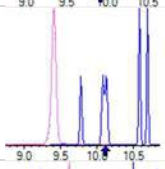
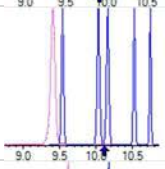
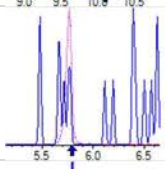
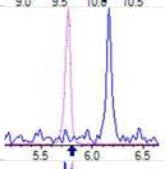
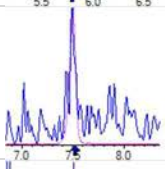
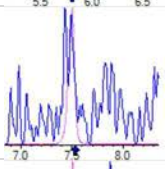
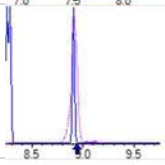
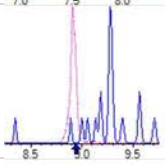
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
PFPeA	(262.9 / 219.0) N/A (262.9 / 69.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHxA	(313.0 / 269.0) N/A (313.0 / 119.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFHpA	(363.0 / 319.0) N/A (363.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFOA	(413.0 / 369.0) N/A (413.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFNA	(463.0 / 419.0) N/A (463.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDA	(513.0 / 469.0) N/A (513.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFUnA	(563.0 / 519.0) N/A (563.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFDoA	(613.0 / 569.0) N/A (613.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTrDA	(663.0 / 619.0) N/A (663.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
PFTeDA	(713.0 / 669.0) N/A (713.0 / 169.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (18)
Acquired: 2022/12/22 - 15:02

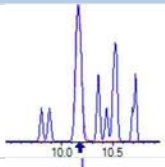
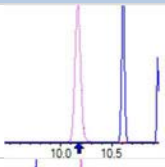
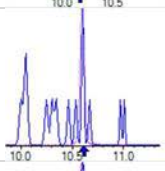
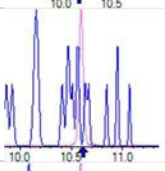
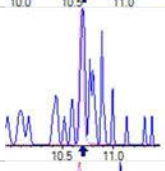
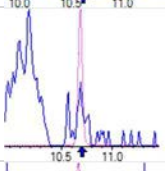
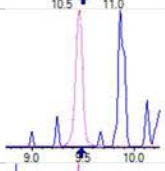
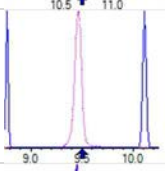
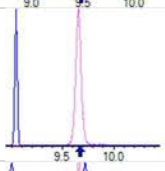
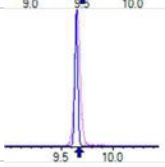
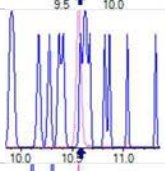
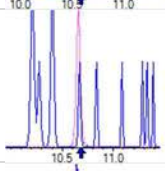
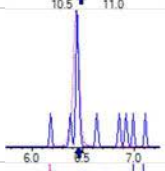
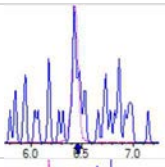
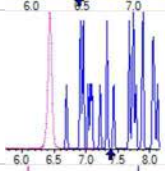
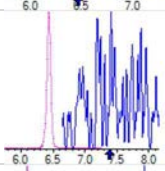
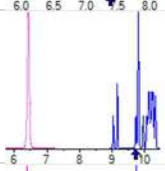
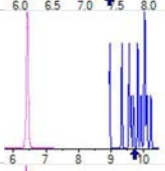
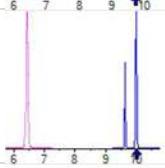
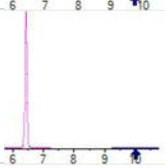
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) N/A (298.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	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) 16427 (499.0 / 99.0) 4242	(9.40 , 1.00) (0.00 , N/A , -0.7)	49.7 36.0	0.2583 106.2 112.9	0.0216	N/A			MI5 DG 2022-12-27
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	(698.9 / 80.0) N/A (698.9 / 99.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
4:2FTS	(327.0 / 307.0) N/A (327.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
6:2FTS	(427.0 / 407.0) N/A (427.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
8:2FTS	(527.0 / 507.0) N/A (527.0 / 81.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (18)
Acquired: 2022/12/22 - 15:02

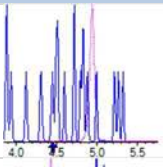
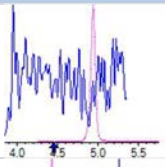
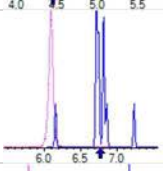
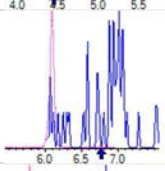
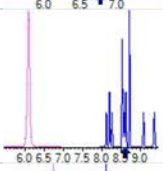
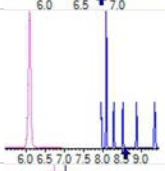
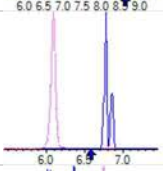
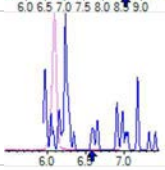
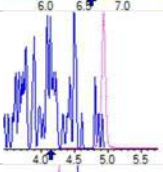
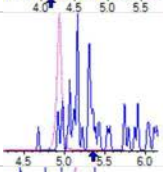
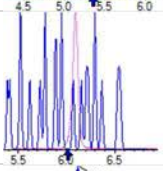
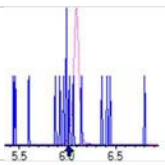
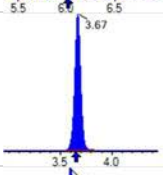
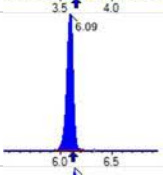
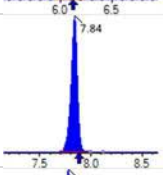
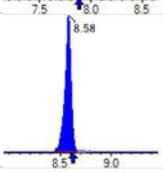
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) N/A (498.0 / 478.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
NMeFOSA	(511.9 / 219.0) N/A (511.9 / 169.0) N/A	(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	(616.1 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
NEtFOSE	(630.0 / 59.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A	N/A 0.0 0.0	0.0000	N/A			
HFPO-DA	(285.0 / 169.0) N/A (285.0 / 185.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
ADONA	(377.0 / 85.0) N/A (377.0 / 251.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) N/A (533.0 / 353.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) N/A (633.0 / 453.0) N/A	(N/A , N/A) (N/A , N/A , N/A)	N/A N/A	N/A 0.0 0.0	0.0000	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (18)
Acquired: 2022/12/22 - 15:02

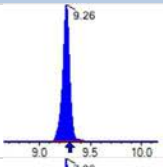
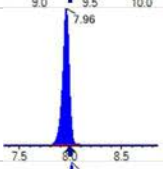
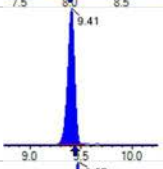
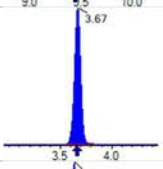
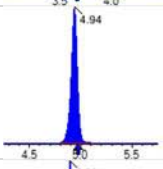
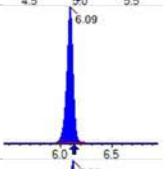
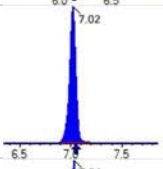
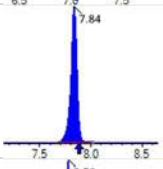
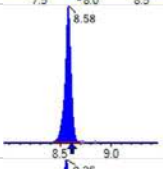
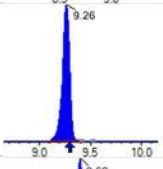
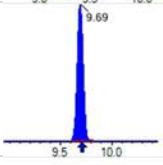
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) N/A (241.0 / 117.0) N/A	(N/A , N/A) (N/A , N/A , 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) 213406	(3.67 , N/A) (N/A , 0.01 , N/A)	1046.4	N/A	1.5332 [1.0000]	153.3% { 135.9% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 321165	(6.09 , N/A) (N/A , -0.03 , N/A)	584.7	N/A	1.3908 [1.0000]	139.1% { 136.1% }			
13C4_PFOA_IIS	(417.0 / 372.0) 337795	(7.84 , N/A) (N/A , -0.04 , N/A)	468.0	N/A	1.5365 [1.0000]	153.6% { 131.5% }			
13C5_PFNA_IIS	(468.0 / 423.0) 264718	(8.58 , N/A) (N/A , -0.04 , N/A)	505.2	N/A	1.4295 [1.0000]	143.0% { 112.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (18)
Acquired: 2022/12/22 - 15:02

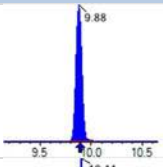
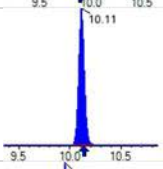
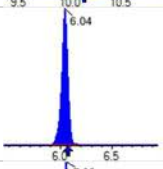
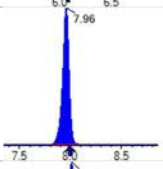
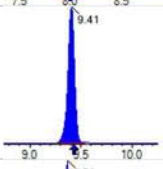
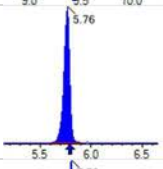
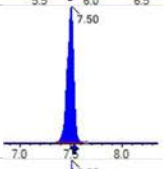
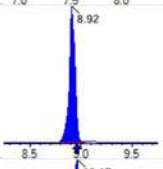
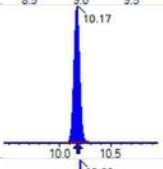
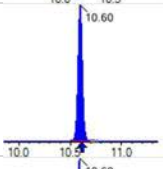
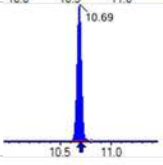
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 252177	(9.26 , N/A) (N/A , -0.03 , N/A)	539.8	N/A	1.3645 [1.0000]	136.5% { 134.7% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 578966	(7.96 , N/A) (N/A , -0.04 , N/A)	894.2	N/A	1.4341 [1.0000]	143.4% { 129.7% }			
13C4_PFOS_IIS	(502.8 / 79.9) 473378	(9.41 , N/A) (N/A , -0.03 , N/A)	438.4	N/A	1.4831 [1.0000]	148.3% { 136.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1661761	(3.67 , N/A) (N/A , 0.01 , N/A)	878.0	N/A	7.5658 [8.0000]	94.6% { 132.3% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 842597	(4.94 , N/A) (N/A , -0.03 , N/A)	733.4	N/A	3.7706 [4.0000]	94.3% { 123.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 681229	(6.09 , N/A) (N/A , -0.03 , N/A)	646.0	N/A	1.8432 [2.0000]	92.2% { 127.1% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 584938	(7.02 , N/A) (N/A , -0.03 , N/A)	609.4	N/A	1.8142 [2.0000]	90.7% { 130.1% }			
13C8_PFOA_EIS	(421.0 / 376.0) 712681	(7.84 , N/A) (N/A , -0.04 , N/A)	787.6	N/A	1.9238 [2.0000]	96.2% { 119.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 279325	(8.58 , N/A) (N/A , -0.04 , N/A)	568.9	N/A	0.9596 [1.0000]	96.0% { 120.5% }			
13C6_PFDA_EIS	(519.0 / 474.0) 322005	(9.26 , N/A) (N/A , -0.03 , N/A)	387.2	N/A	0.8978 [1.0000]	89.8% { 117.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 468495	(9.69 , N/A) (N/A , -0.02 , N/A)	719.2	N/A	0.9183 [1.0000]	91.8% { 125.9% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (18)
Acquired: 2022/12/22 - 15:02

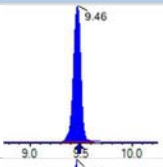
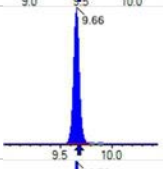
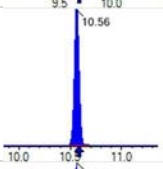
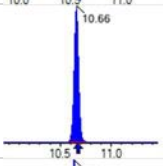
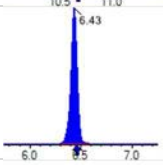
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 540881	(9.88 , N/A) (N/A , -0.01 , N/A)	486.8	N/A	1.0622 [1.0000]	106.2% { 147.7% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 263868	(10.11 , N/A) (N/A , -0.01 , N/A)	483.4	N/A	0.7803 [1.0000]	78.0% { 103.4% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1689642	(6.04 , N/A) (N/A , -0.03 , N/A)	790.0	N/A	1.7261 [2.0000]	86.3% { 126.8% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 934282	(7.96 , N/A) (N/A , -0.04 , N/A)	977.4	N/A	1.7938 [2.0000]	89.7% { 121.7% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1403204	(9.41 , N/A) (N/A , -0.03 , N/A)	575.9	N/A	1.7271 [2.0000]	86.4% { 125.6% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 296135	(5.76 , N/A) (N/A , -0.03 , N/A)	692.7	N/A	3.5718 [4.0000]	89.3% { 131.6% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 442147	(7.50 , N/A) (N/A , -0.03 , N/A)	737.7	N/A	4.4294 [4.0000]	110.7% { 131.5% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 348908	(8.92 , N/A) (N/A , -0.03 , N/A)	388.6	N/A	3.4917 [4.0000]	87.3% { 110.4% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1657791	(10.17 , N/A) (N/A , -0.01 , N/A)	850.4	N/A	1.6143 [2.0000]	80.7% { 121.5% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 171215	(10.60 , N/A) (N/A , -0.01 , N/A)	636.6	N/A	0.7636 [2.0000]	38.2% { 59.6% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 131232	(10.69 , N/A) (N/A , -0.01 , N/A)	1041.1	N/A	0.6340 [2.0000]	31.7% { 43.2% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BLK1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (18)
Acquired: 2022/12/22 - 15:02

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
D3_MeFOSAA_EIS	(573.0 / 419.0) 568266	(9.46 , N/A) (N/A , -0.02 , N/A)	545.3	N/A	2.9415 [4.0000]	73.5% { 107.5% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 560400	(9.66 , N/A) (N/A , -0.02 , N/A)	306.6	N/A	3.2910 [4.0000]	82.3% { 135.1% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 375340	(10.56 , N/A) (N/A , -0.01 , N/A)	1095.4	N/A	11.9217 [20.0000]	59.6% { 86.3% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 171627	(10.66 , N/A) (N/A , -0.02 , N/A)	1226.8	N/A	11.9742 [20.0000]	59.9% { 86.6% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1400236	(6.43 , N/A) (N/A , -0.03 , N/A)	799.3	N/A	7.1259 [8.0000]	89.1% { 115.0% }			

ANALYSIS DATA SHEET

LCS

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BBL0403-BS1	File ID:	S2022-12-22A (19)
Sampled:		Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:15
Solids:		Preparation:	1633	Dilution:	1
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011
Column:	1			Instrument:	Saphira

COMPOUND	CONC. (ng/L)	LOQ	DL	Q
PFBA	16.1	1.6	0.21	
PFPEA	7.93	0.80	0.065	
PFHXA	4.27	0.40	0.055	
PFHPA	3.87	0.40	0.041	
PFOA	3.50	0.40	0.15	
PFNA	3.90	0.40	0.082	
PFDA	4.33	0.40	0.10	
PFUnA	4.74	0.40	0.16	
PFDOA	3.75	0.40	0.11	
PFTRDA	3.68	0.40	0.20	
PFTEDA	4.31	0.40	0.20	
PFBS	3.64	0.40	0.037	
PFPES	3.56	0.40	0.063	
PFHXS	3.53	0.40	0.032	
PFHPS	3.57	0.40	0.051	
PFOS	3.24	0.40	0.064	
PFNS	3.62	0.40	0.12	
PFDS	3.46	0.40	0.15	
PFDOS	3.24	0.40	0.12	
4:2FTS	13.2	1.6	0.29	
6:2FTS	15.2	1.6	0.31	
8:2FTS	14.7	1.6	0.082	
PFOSA	3.46	0.40	0.10	
NMeFOSA	18.4	1.6	0.47	
NEtFOSA	16.9	1.6	0.41	
NMeFOSAA	3.87	0.40	0.11	
NEtFOSAA	3.84	0.40	0.11	
NMeFOSE	17.8	1.6	1.0	
NEtFOSE	15.8	1.6	1.0	
HFPO-DA	7.61	[illegible]	[illegible]	

ANALYSIS DATA SHEET

LCS

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BBL0403-BS1	File ID:	S2022-12-22A (19)
Sampled:		Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:15
Solids:		Preparation:	1633	Dilution:	1
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011
Column:	1				

Instrument: Saphira

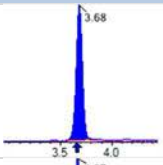
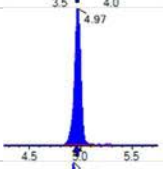
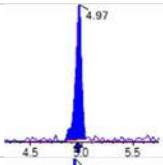
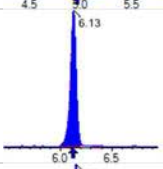
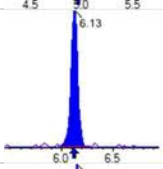
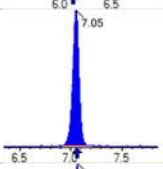
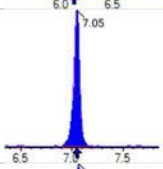
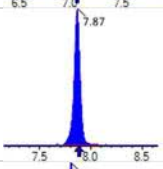
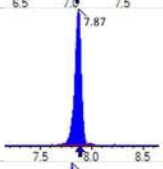
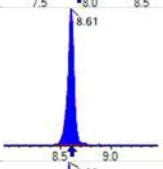
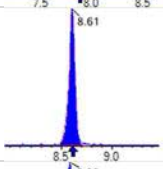
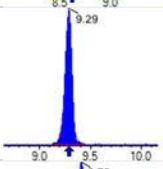
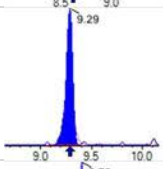
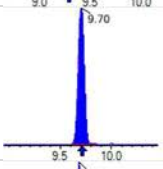
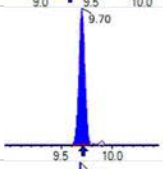
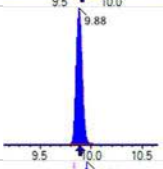
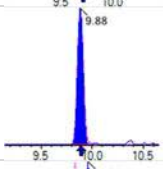
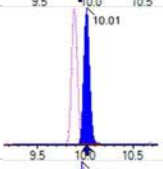
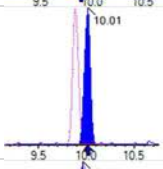
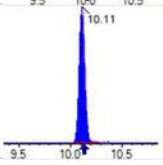
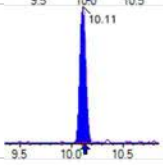
COMPOUND	CONC. (ng/L)	LOQ	DL	Q
ADONA	7.89	0.80	0.12	
PFEESA	7.00	0.80	0.11	
PFMPA	8.31	0.80	0.054	
PFMBA	7.54	0.80	0.091	
NFDHA	8.29	0.80	0.30	
9CL-PF3ONS	6.81	0.80	0.21	
11CL-PF3OUDS	7.94	0.80	0.21	
3:3FTCA	17.4	1.6	0.57	
5:3FTCA	17.2	1.6	0.44	
7:3FTCA	17.9	1.6	0.55	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (19)
Acquired: 2022/12/22 - 15:15

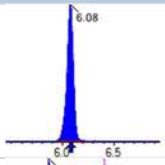
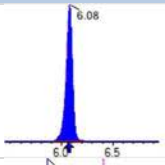
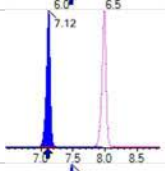
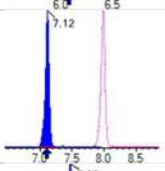
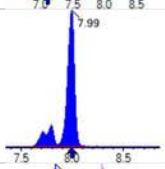
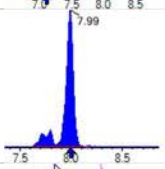
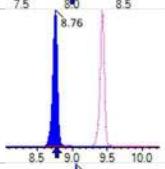
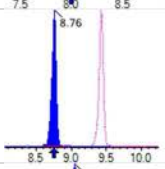
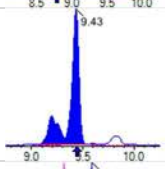
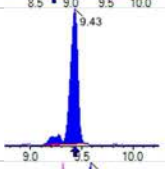
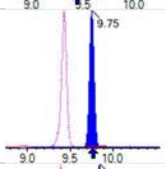
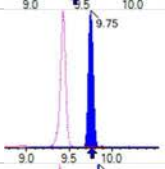
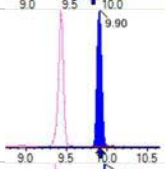
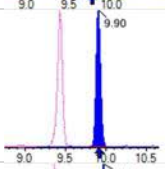
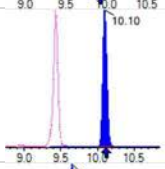
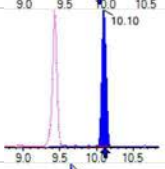
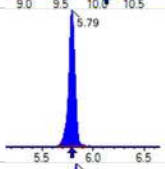
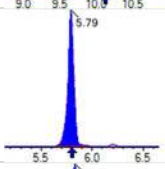
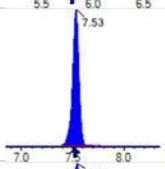
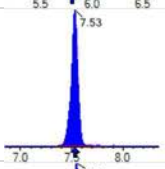
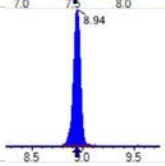
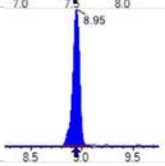
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 545755	(3.68 , 1.00) (0.00 , N/A , 0.0)	63.6	N/A 0.0 0.0	4.0261	N/A			
PFPeA	(262.9 / 219.0) 372369 (262.9 / 69.0) 4677	(4.97 , 1.00) (0.00 , N/A , -0.1)	733.5 110.9	0.0126 112.2 120.8	1.9819	N/A			
PFHxA	(313.0 / 269.0) 294538 (313.0 / 119.0) 26696	(6.13 , 1.00) (0.00 , N/A , 0.0)	521.1 167.6	0.0906 92.7 101.4	1.0683	N/A			
PFHpA	(363.0 / 319.0) 268718 (363.0 / 169.0) 75831	(7.05 , 1.00) (0.01 , N/A , 0.0)	507.8 335.3	0.2822 90.6 91.5	0.9679	N/A			
PFOA	(413.0 / 369.0) 308801 (413.0 / 169.0) 104004	(7.87 , 1.00) (0.00 , N/A , -0.1)	555.2 362.0	0.3368 103.1 113.8	0.8758	N/A			
PFNA	(463.0 / 419.0) 232358 (463.0 / 169.0) 47926	(8.61 , 1.00) (0.00 , N/A , 0.0)	303.2 94.3	0.2063 107.0 99.0	0.9755	N/A			
PFDA	(513.0 / 469.0) 317436 (513.0 / 169.0) 24321	(9.29 , 1.00) (0.00 , N/A , 0.1)	424.0 146.6	0.0766 80.2 78.0	1.0822	N/A			
PFUnA	(563.0 / 519.0) 398290 (563.0 / 169.0) 33932	(9.70 , 1.00) (0.00 , N/A , 0.3)	793.8 1085.4	0.0852 98.1 95.0	1.1851	N/A			
PFDoA	(613.0 / 569.0) 356745 (613.0 / 169.0) 42358	(9.88 , 1.00) (0.00 , N/A , -0.2)	728.6 188.1	0.1187 85.3 90.3	0.9376	N/A			
PFTrDA	(663.0 / 619.0) 303236 (663.0 / 169.0) 53837	(10.01 , 1.01) (N/A , 0.00 , 0.1)	417.3 273.6	0.1775 86.7 77.7	0.9198	N/A			
PFTeDA	(713.0 / 669.0) 273951 (713.0 / 169.0) 58008	(10.11 , 1.00) (-0.01 , N/A , 0.0)	430.9 229.3	0.2117 104.1 103.2	1.0767	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (19)
Acquired: 2022/12/22 - 15:15

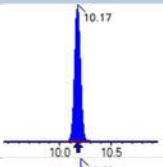
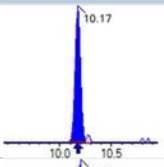
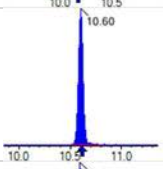
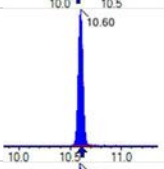
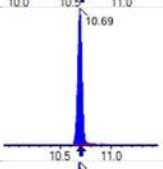
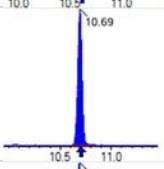
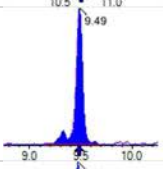
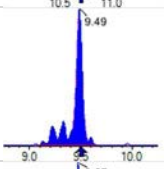
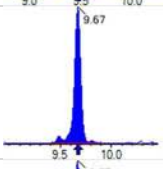
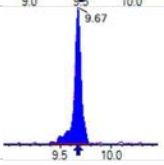
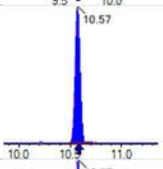
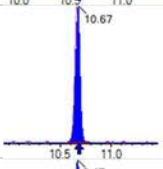
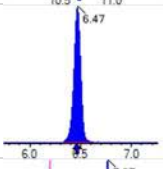
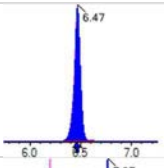
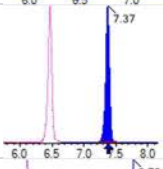
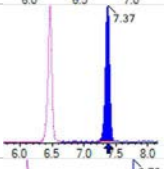
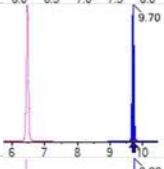
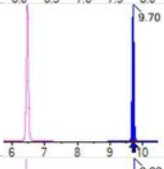
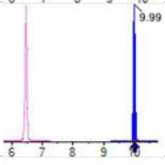
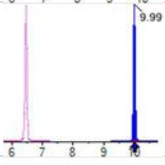
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 416632 (298.9 / 99.0) 254354	(6.08 , 1.00) (0.00 , N/A , -0.2)	654.9 635.4	0.6105 99.2 93.2	0.9112	N/A			
PFPeS	(349.0 / 80.0) 763727 (349.0 / 99.0) 279856	(7.12 , 0.89) (N/A , 0.00 , 0.1)	812.8 649.9	0.3664 102.9 95.4	0.8889	N/A			
PFHxS	(399.0 / 80.0) 659925 (399.0 / 99.0) 202208	(7.99 , 1.00) (0.00 , N/A , 0.1)	3783.4 733.9	0.3064 91.2 92.6	0.8832	N/A			
PFHpS	(449.0 / 80.0) 568524 (449.0 / 99.0) 161661	(8.76 , 0.93) (N/A , -0.01 , 0.0)	558.4 413.8	0.2844 103.9 111.8	0.8924	N/A			
PFOS	(499.0 / 80.0) 641707 (499.0 / 99.0) 157358	(9.43 , 1.00) (0.00 , N/A , 0.3)	258.3 135.4	0.2452 100.8 107.2	0.8097	N/A			
PFNS	(549.0 / 80.0) 796332 (549.0 / 99.0) 182779	(9.75 , 1.03) (N/A , 0.00 , 0.1)	658.8 472.6	0.2295 94.1 89.9	0.9058	N/A			
PFDS	(599.0 / 80.0) 843135 (599.0 / 99.0) 199831	(9.90 , 1.05) (N/A , -0.01 , 0.0)	881.4 454.8	0.2370 105.3 101.3	0.8638	N/A			
PFDoS	(698.9 / 80.0) 330060 (698.9 / 99.0) 66635	(10.10 , 1.07) (N/A , -0.01 , -0.1)	759.3 358.0	0.2019 82.5 104.0	0.8091	N/A			
4:2FTS	(327.0 / 307.0) 744599 (327.0 / 81.0) 466591	(5.79 , 1.00) (0.00 , N/A , 0.0)	740.1 500.1	0.6266 126.9 109.4	3.2925	N/A			
6:2FTS	(427.0 / 407.0) 502501 (427.0 / 81.0) 337535	(7.53 , 1.00) (0.00 , N/A , 0.1)	704.0 482.6	0.6717 86.3 96.3	3.7900	N/A			
8:2FTS	(527.0 / 507.0) 498462 (527.0 / 81.0) 295342	(8.94 , 1.00) (0.00 , N/A , -0.2)	568.7 428.8	0.5925 104.7 107.6	3.6753	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (19)
Acquired: 2022/12/22 - 15:15

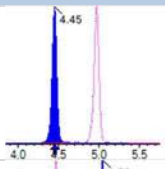
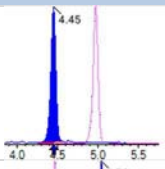
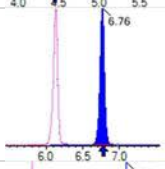
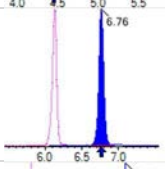
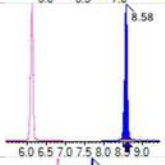
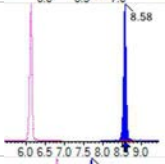
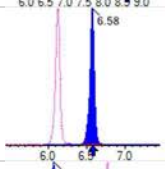
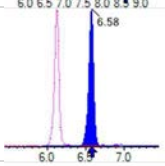
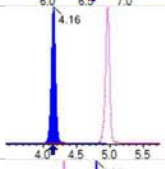
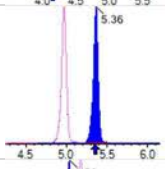
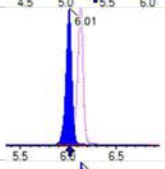
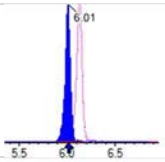
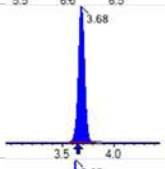
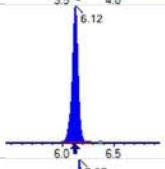
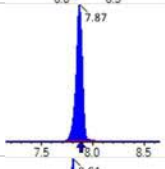
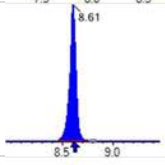
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 666153 (498.0 / 478.0) 16137	(10.17 , 1.00) (0.00 , N/A , -0.2)	935.3 518.2	0.0242 116.2 99.9	0.8662	N/A			
NMeFOSA	(511.9 / 219.0) 220913 (511.9 / 169.0) 150475	(10.60 , 1.00) (0.00 , N/A , 0.2)	940.2 663.4	0.6811 94.6 100.7	4.5934	N/A			
NEtFOSA	(526.0 / 219.0) 189488 (526.0 / 169.0) 197367	(10.69 , 1.00) (0.00 , N/A , 0.0)	828.7 757.8	1.0416 98.5 98.2	4.2255	N/A			
NMeFOSAA	(570.0 / 419.0) 118504 (570.0 / 483.0) 61539	(9.49 , 1.00) (0.01 , N/A , 0.1)	233.1 418.3	0.5193 84.5 103.9	0.9667	N/A			
NEtFOSAA	(584.0 / 419.0) 115119 (584.0 / 526.0) 71319	(9.67 , 1.00) (0.00 , N/A , -0.3)	425.7 2230.8	0.6195 84.5 85.3	0.9599	N/A			
NMeFOSE	(616.1 / 59.0) 74971	(10.57 , 1.00) (0.01 , N/A , 0.0)	573.5	N/A 0.0 0.0	4.4535	N/A			
NEtFOSE	(630.0 / 59.0) 13157	(10.67 , 1.00) (0.01 , N/A , 0.0)	376.4	N/A 0.0 0.0	3.9488	N/A			
HFPO-DA	(285.0 / 169.0) 203876 (285.0 / 185.0) 579958	(6.47 , 1.00) (0.00 , N/A , -0.1)	853.8 697.1	2.8447 103.6 109.3	1.9017	N/A			
ADONA	(377.0 / 85.0) 939409 (377.0 / 251.0) 126426	(7.37 , 1.14) (N/A , -0.01 , 0.1)	808.8 329.5	0.1346 108.1 105.4	1.9728	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 2280228 (533.0 / 353.0) 773043	(9.70 , 1.50) (N/A , 0.00 , -0.1)	813.7 574.6	0.3390 114.5 116.8	1.7021	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 1320966 (633.0 / 453.0) 374975	(9.99 , 1.54) (N/A , -0.01 , -0.1)	741.5 591.4	0.2839 85.8 88.3	1.9848	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (19)
Acquired: 2022/12/22 - 15:15

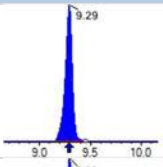
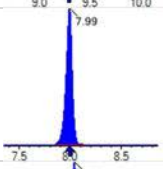
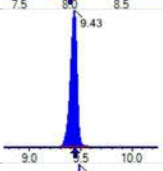
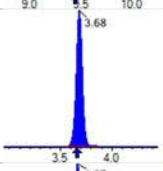
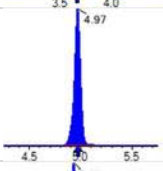
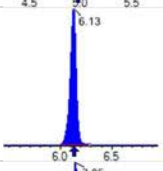
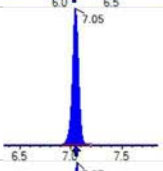
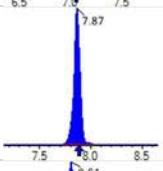
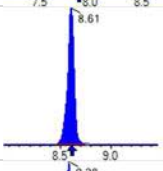
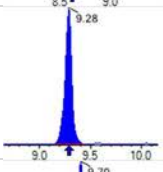
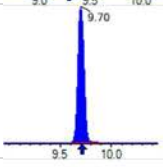
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 28249 (241.0 / 117.0) 42258	(4.45 , 0.90) (N/A , 0.00 , 0.0)	477.1 324.5	1.4959 89.4 89.1	4.3565	N/A			
5:3FTCA	(341.0 / 236.7) 209917 (341.0 / 217.0) 311800	(6.76 , 1.10) (N/A , 0.00 , 0.0)	658.1 454.4	1.4853 101.5 92.4	4.3091	N/A			
7:3FTCA	(441.0 / 317.0) 251483 (441.0 / 337.0) 211921	(8.58 , 1.40) (N/A , -0.01 , 0.3)	368.8 342.4	0.8427 100.6 101.0	4.4865	N/A			
PFEESA	(315.0 / 135.0) 528283 (315.0 / 83.0) 158817	(6.58 , 1.07) (N/A , 0.00 , 0.0)	1051.4 521.0	0.3006 97.9 101.7	1.7502	N/A			
PFMPA	(229.0 / 85.0) 107185	(4.16 , 0.84) (N/A , 0.00 , 0.0)	850.0	N/A 0.0 0.0	2.0786	N/A			
PFMBA	(279.0 / 85.0) 336120	(5.36 , 1.08) (N/A , 0.01 , 0.0)	1011.6	N/A 0.0 0.0	1.8858	N/A			
NFDHA	(295.0 / 201.0) 288056 (295.0 / 85.0) 265253	(6.01 , 0.98) (N/A , 0.00 , 0.0)	613.8 721.3	0.9208 104.3 105.1	2.0721	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 208102	(3.68 , N/A) (N/A , 0.03 , N/A)	782.3	N/A	1.4951 [1.0000]	149.5% { 132.5% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 282997	(6.12 , N/A) (N/A , 0.00 , N/A)	423.3	N/A	1.2255 [1.0000]	122.6% { 119.9% }			
13C4_PFOA_IIS	(417.0 / 372.0) 336563	(7.87 , N/A) (N/A , -0.01 , N/A)	718.5	N/A	1.5309 [1.0000]	153.1% { 131.0% }			
13C5_PFNA_IIS	(468.0 / 423.0) 256791	(8.61 , N/A) (N/A , -0.01 , N/A)	387.9	N/A	1.3867 [1.0000]	138.7% { 109.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (19)
Acquired: 2022/12/22 - 15:15

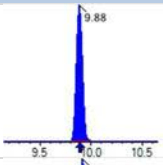
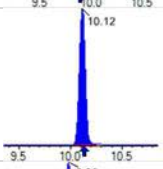
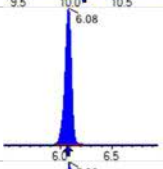
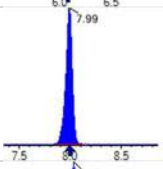
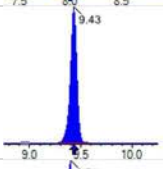
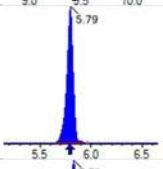
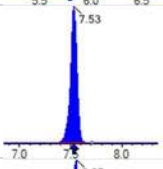
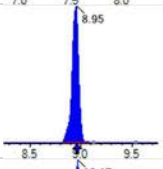
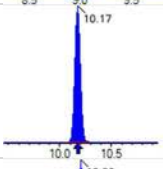
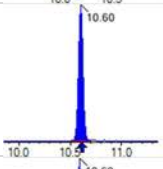
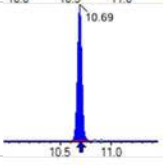
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 292869	(9.29 , N/A) (N/A , 0.00 , N/A)	468.6	N/A	1.5847 [1.0000]	158.5% { 156.5% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 560815	(7.99 , N/A) (N/A , 0.00 , N/A)	798.4	N/A	1.3892 [1.0000]	138.9% { 125.7% }			
13C4_PFOS_IIS	(502.8 / 79.9) 445609	(9.43 , N/A) (N/A , -0.01 , N/A)	431.4	N/A	1.3961 [1.0000]	139.6% { 128.6% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1662253	(3.68 , N/A) (N/A , 0.03 , N/A)	871.4	N/A	7.7609 [8.0000]	97.0% { 132.4% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 855726	(4.97 , N/A) (N/A , 0.00 , N/A)	742.9	N/A	4.3459 [4.0000]	108.6% { 125.9% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 642031	(6.13 , N/A) (N/A , 0.00 , N/A)	560.6	N/A	1.9715 [2.0000]	98.6% { 119.8% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 609162	(7.05 , N/A) (N/A , 0.00 , N/A)	625.2	N/A	2.1442 [2.0000]	107.2% { 135.4% }			
13C8_PFOA_EIS	(421.0 / 376.0) 717080	(7.87 , N/A) (N/A , -0.01 , N/A)	606.1	N/A	1.9428 [2.0000]	97.1% { 120.4% }			
13C9_PFNA_EIS	(472.0 / 427.0) 277602	(8.61 , N/A) (N/A , -0.01 , N/A)	479.2	N/A	0.9831 [1.0000]	98.3% { 119.8% }			
13C6_PFDA_EIS	(519.0 / 474.0) 308154	(9.28 , N/A) (N/A , 0.00 , N/A)	391.6	N/A	0.7398 [1.0000]	74.0% { 112.0% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 425254	(9.70 , N/A) (N/A , -0.01 , N/A)	664.2	N/A	0.7178 [1.0000]	71.8% { 114.3% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (19)
Acquired: 2022/12/22 - 15:15

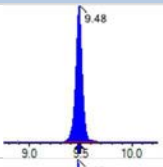
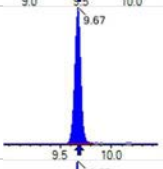
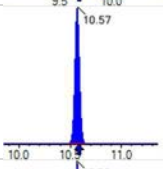
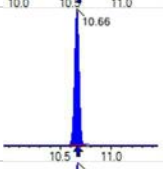
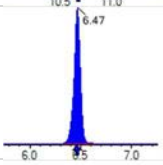
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 441366	(9.88 , N/A) (N/A , -0.01 , N/A)	699.2	N/A	0.7464 [1.0000]	74.6% { 120.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 287092	(10.12 , N/A) (N/A , 0.00 , N/A)	461.4	N/A	0.7310 [1.0000]	73.1% { 112.5% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1668057	(6.08 , N/A) (N/A , 0.01 , N/A)	674.2	N/A	1.7592 [2.0000]	88.0% { 125.2% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 961855	(7.99 , N/A) (N/A , -0.01 , N/A)	864.0	N/A	1.9065 [2.0000]	95.3% { 125.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1460322	(9.43 , N/A) (N/A , 0.00 , N/A)	390.7	N/A	1.9095 [2.0000]	95.5% { 130.7% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 273581	(5.79 , N/A) (N/A , 0.00 , N/A)	703.3	N/A	3.4065 [4.0000]	85.2% { 121.5% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 344928	(7.53 , N/A) (N/A , 0.00 , N/A)	785.2	N/A	3.5673 [4.0000]	89.2% { 102.6% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 342416	(8.95 , N/A) (N/A , 0.00 , N/A)	413.5	N/A	3.5377 [4.0000]	88.4% { 108.4% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1627421	(10.17 , N/A) (N/A , -0.01 , N/A)	1036.4	N/A	1.6835 [2.0000]	84.2% { 119.3% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 117999	(10.60 , N/A) (N/A , -0.01 , N/A)	787.4	N/A	0.5591 [2.0000]	28.0% { 41.1% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 99431	(10.69 , N/A) (N/A , -0.01 , N/A)	760.7	N/A	0.5103 [2.0000]	25.5% { 32.7% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-BS1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (19)
Acquired: 2022/12/22 - 15:15

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 629222	(9.48 , N/A) (N/A , -0.01 , N/A)	481.0	N/A	3.4600 [4.0000]	86.5% { 119.0% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 534358	(9.67 , N/A) (N/A , -0.01 , N/A)	410.9	N/A	3.3336 [4.0000]	83.3% { 128.8% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 266744	(10.57 , N/A) (N/A , -0.01 , N/A)	1052.3	N/A	9.0004 [20.0000]	45.0% { 61.4% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 130149	(10.66 , N/A) (N/A , -0.01 , N/A)	1684.2	N/A	9.6462 [20.0000]	48.2% { 65.7% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1411035	(6.47 , N/A) (N/A , 0.00 , N/A)	698.3	N/A	8.1493 [8.0000]	101.9% { 115.9% }			

ANALYSIS DATA SHEET

MRL Check

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BBL0403-MRL1	File ID:	S2022-12-22A (20)
Sampled:		Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:28
Solids:		Preparation:	1633	Dilution:	1
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011
Instrument:	Saphira				
Column:	1				

COMPOUND	CONC. (ng/L)	LOQ	DL	Q
PFBA	1.51	1.6	0.21	J
PFPEA	0.801	0.80	0.065	
PFHXA	0.370	0.40	0.055	J
PFHPA	0.350	0.40	0.041	J
PFOA	0.403	0.40	0.15	
PFNA	0.333	0.40	0.082	J
PFDA	0.274	0.40	0.10	J
PFUnA	0.345	0.40	0.16	J
PFDOA	0.342	0.40	0.11	J
PFTRDA	0.378	0.40	0.20	IR1, J
PFTEDA	0.329	0.40	0.20	IR2, J
PFBS	0.328	0.40	0.037	J
PFPES	0.341	0.40	0.063	J
PFHXS	0.355	0.40	0.032	J
PFHPS	0.358	0.40	0.051	J
PFOS	0.401	0.40	0.064	
PFNS	0.321	0.40	0.12	J
PFDS	0.394	0.40	0.15	J
PFDOS	0.382	0.40	0.12	J
4:2FTS	1.43	1.6	0.29	J
6:2FTS	1.31	1.6	0.31	J
8:2FTS	1.16	1.6	0.082	J
PFOSA	0.425	0.40	0.10	
NMeFOSA	1.69	1.6	0.47	
NEtFOSA	1.38	1.6	0.41	J
NMeFOSAA	0.457	0.40	0.11	
NEtFOSAA	0.354	0.40	0.11	J
NMeFOSE	1.40	1.6	1.0	J
NEtFOSE	1.25	1.6	1.0	J
HFPO-DA	0.686	0.80	0.13	J

ANALYSIS DATA SHEET

MRL Check

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM		Project:	Red Hill AFFF Assessment Sampling	
Matrix:	Water	Laboratory ID:	BBL0403-MRL1	File ID:	S2022-12-22A (20)
Sampled:		Prepared:	12/20/22 15:01	Analyzed:	12/22/22 15:28
Solids:		Preparation:	1633	Dilution:	1
Batch:	BBL0403	Sequence:	SB03951	Calibration:	2252011
Column:	1				

Instrument: Saphira

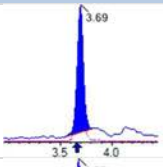
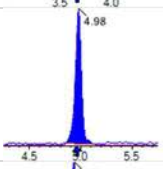
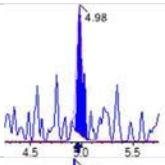
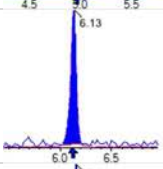
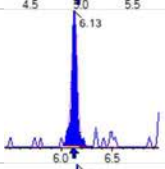
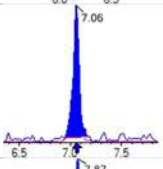
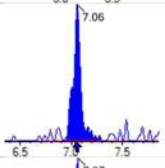
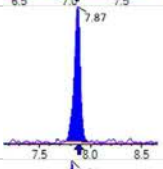
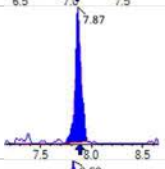
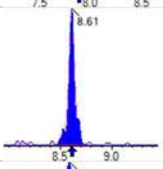
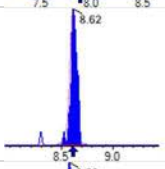
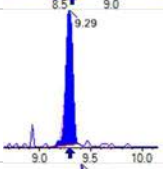
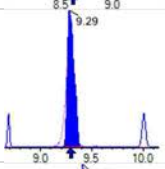
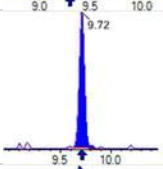
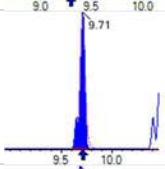
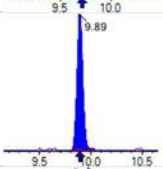
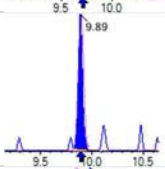
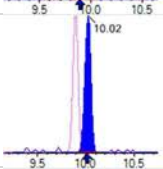
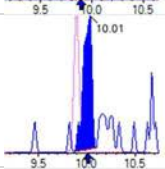
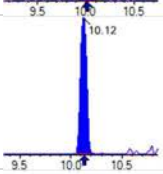
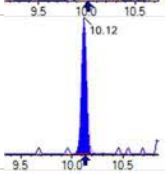
COMPOUND	CONC. (ng/L)	LOQ	DL	Q
ADONA	0.768	0.80	0.12	J
PFEESA	0.627	0.80	0.11	J
PFMPA	0.784	0.80	0.054	J
PFMBA	0.680	0.80	0.091	J
NFDHA	0.877	0.80	0.30	
9CL-PF3ONS	0.598	0.80	0.21	J
11CL-PF3OUDS	0.811	0.80	0.21	
3:3FTCA	1.35	1.6	0.57	J
5:3FTCA	1.88	1.6	0.44	
7:3FTCA	1.79	1.6	0.55	

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (20)
Acquired: 2022/12/22 - 15:28

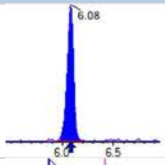
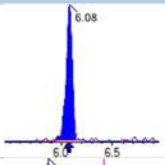
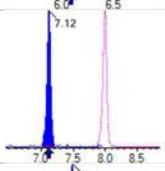
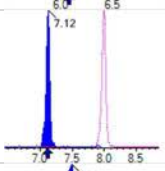
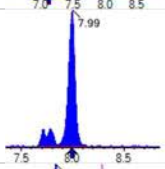
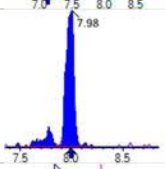
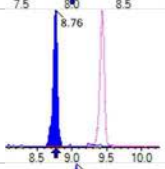
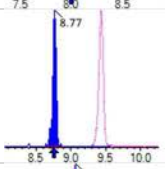
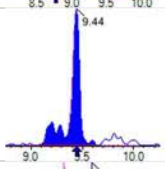
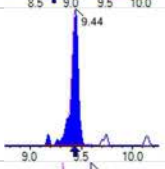
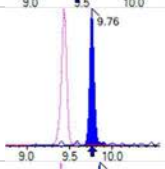
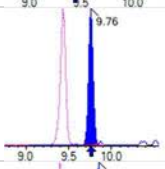
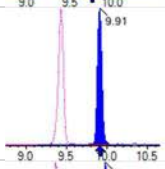
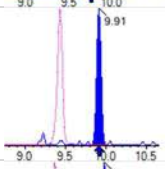
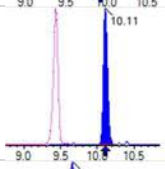
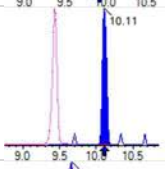
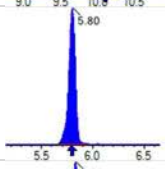
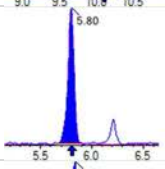
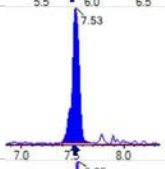
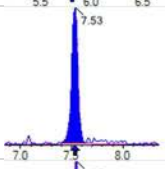
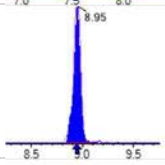
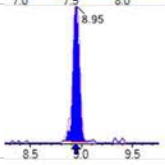
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBA	(212.9 / 169.0) 53718	(3.69 , 1.00) (0.00 , N/A , 0.0)	52.4	N/A 0.0 0.0	0.3785	N/A			
PFPeA	(262.9 / 219.0) 38518 (262.9 / 69.0) 481	(4.98 , 1.00) (0.00 , N/A , 0.0)	251.2 14.2	0.0125 111.5 120.0	0.2003	N/A			
PFHxA	(313.0 / 269.0) 25053 (313.0 / 119.0) 2716	(6.13 , 1.00) (0.00 , N/A , 0.2)	88.4 44.5	0.1084 110.9 121.3	0.0926	N/A			
PFHpA	(363.0 / 319.0) 26608 (363.0 / 169.0) 8046	(7.06 , 1.00) (0.00 , N/A , 0.0)	84.9 114.7	0.3024 97.1 98.1	0.0876	N/A			
PFOA	(413.0 / 369.0) 38310 (413.0 / 169.0) 10358	(7.87 , 1.00) (0.00 , N/A , 0.4)	152.4 121.8	0.2704 82.7 91.4	0.1008	N/A			
PFNA	(463.0 / 419.0) 21778 (463.0 / 169.0) 4342	(8.61 , 1.00) (0.00 , N/A , -0.7)	115.6 119.3	0.1994 103.5 95.7	0.0832	N/A			
PFDA	(513.0 / 469.0) 23464 (513.0 / 169.0) 2418	(9.29 , 1.00) (0.00 , N/A , 0.1)	80.9 219.5	0.1031 107.8 104.9	0.0685	N/A			
PFUnA	(563.0 / 519.0) 31347 (563.0 / 169.0) 1857	(9.72 , 1.00) (0.01 , N/A , 0.1)	149.6 1332.4	0.0593 68.2 66.1	0.0863	N/A			
PFDoA	(613.0 / 569.0) 36370 (613.0 / 169.0) 3850	(9.89 , 1.00) (0.00 , N/A , 0.3)	243.4 45.5	0.1059 76.0 80.5	0.0856	N/A			
PFTrDA	(663.0 / 619.0) 34801 (663.0 / 169.0) 3626	(10.02 , 1.01) (N/A , 0.01 , 0.7)	154.3 21.0	0.1042 50.9 45.6	0.0946	N/A			IR1,
PFTeDA	(713.0 / 669.0) 25957 (713.0 / 169.0) 8560	(10.12 , 1.00) (0.01 , N/A , 0.3)	125.4 73.8	0.3298 162.2 160.7	0.0822	N/A			IR2,

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (20)
Acquired: 2022/12/22 - 15:28

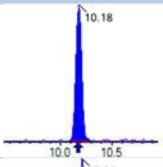
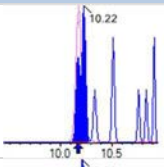
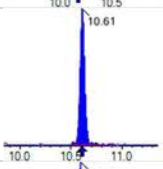
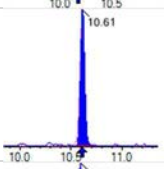
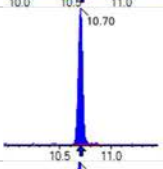
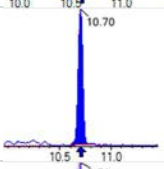
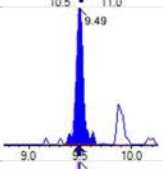
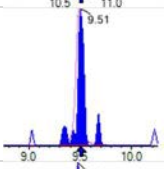
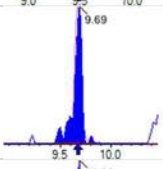
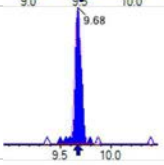
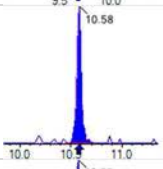
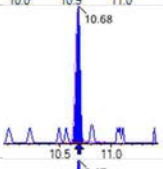
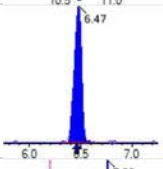
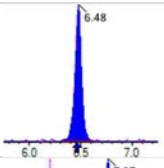
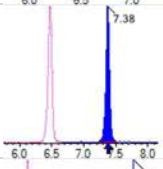
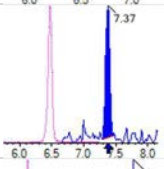
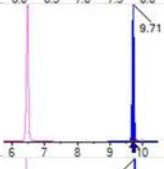
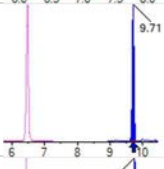
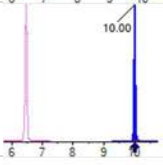
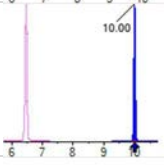
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFBS	(298.9 / 80.0) 37828 (298.9 / 99.0) 26863	(6.08 , 1.00) (0.00 , N/A , 0.1)	239.1 133.9	0.7101 115.4 108.4	0.0820	N/A			
PFPeS	(349.0 / 80.0) 72765 (349.0 / 99.0) 26827	(7.12 , 0.89) (N/A , 0.00 , -0.1)	300.7 318.3	0.3687 103.6 96.0	0.0853	N/A			
PFHxS	(399.0 / 80.0) 65734 (399.0 / 99.0) 21743	(7.99 , 1.00) (0.00 , N/A , 0.4)	3472.8 74829.3	0.3308 98.4 99.9	0.0886	N/A			
PFHpS	(449.0 / 80.0) 61607 (449.0 / 99.0) 19595	(8.76 , 0.93) (N/A , 0.00 , -0.1)	200.8 384.6	0.3181 116.2 125.1	0.0895	N/A			
PFOS	(499.0 / 80.0) 85887 (499.0 / 99.0) 15126	(9.44 , 1.00) (0.01 , N/A , 0.0)	165.4 151.0	0.1761 72.4 77.0	0.1003	N/A			
PFNS	(549.0 / 80.0) 76145 (549.0 / 99.0) 16688	(9.76 , 1.03) (N/A , 0.00 , 0.0)	146.1 126.3	0.2192 89.8 85.9	0.0802	N/A			
PFDS	(599.0 / 80.0) 103951 (599.0 / 99.0) 18937	(9.91 , 1.05) (N/A , 0.00 , -0.3)	373.3 86.9	0.1822 80.9 77.9	0.0986	N/A			
PFDoS	(698.9 / 80.0) 42149 (698.9 / 99.0) 6666	(10.11 , 1.07) (N/A , 0.00 , 0.0)	391.7 157.5	0.1582 64.6 81.5	0.0956	N/A			
4:2FTS	(327.0 / 307.0) 83838 (327.0 / 81.0) 45289	(5.80 , 1.00) (0.00 , N/A , 0.1)	702.4 172.2	0.5402 109.4 94.3	0.3587	N/A			
6:2FTS	(427.0 / 407.0) 48615 (427.0 / 81.0) 35727	(7.53 , 1.00) (0.00 , N/A , 0.1)	128.7 122.7	0.7349 94.4 105.4	0.3268	N/A			
8:2FTS	(527.0 / 507.0) 34604 (527.0 / 81.0) 28221	(8.95 , 1.00) (0.00 , N/A , 0.1)	400.4 147.7	0.8155 144.1 148.1	0.2898	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (20)
Acquired: 2022/12/22 - 15:28

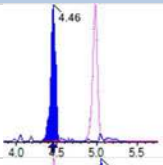
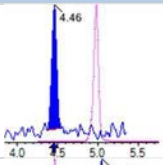
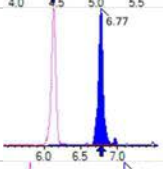
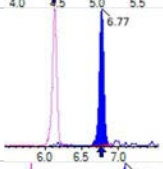
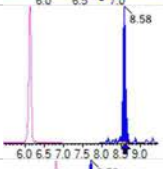
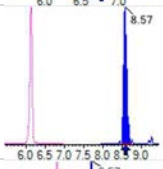
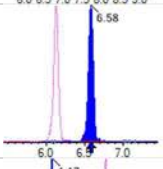
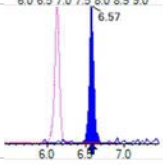
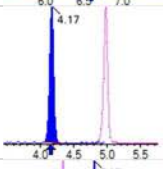
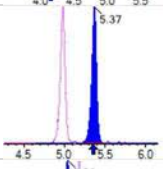
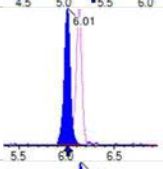
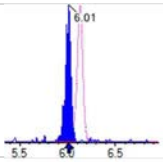
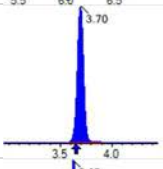
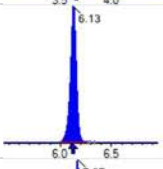
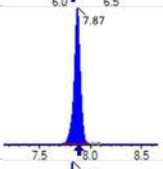
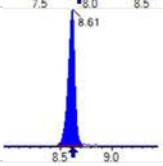
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
PFOSA	(498.0 / 78.0) 65854 (498.0 / 478.0) 1497	(10.18 , 1.00) (0.00 , N/A , -2.3)	243.6 16.7	0.0227 109.1 93.7	0.1063	N/A			
NMeFOSA	(511.9 / 219.0) 19851 (511.9 / 169.0) 12751	(10.61 , 1.00) (0.00 , N/A , -0.1)	294.1 267.3	0.6424 89.2 95.0	0.4223	N/A			
NEtFOSA	(526.0 / 219.0) 13924 (526.0 / 169.0) 17509	(10.70 , 1.00) (0.00 , N/A , 0.0)	455.2 194.0	1.2574 118.9 118.6	0.3449	N/A			
NMeFOSAA	(570.0 / 419.0) 13251 (570.0 / 483.0) 5496	(9.49 , 1.00) (0.01 , N/A , -0.7)	148.9 1872.1	0.4147 67.5 83.0	0.1142	N/A			
NEtFOSAA	(584.0 / 419.0) 12504 (584.0 / 526.0) 10052	(9.69 , 1.00) (0.01 , N/A , 0.5)	685.0 153.7	0.8039 109.6 110.6	0.0885	N/A			
NMeFOSE	(616.1 / 59.0) 5024	(10.58 , 1.00) (0.01 , N/A , 0.0)	120.0	N/A 0.0 0.0	0.3507	N/A			
NEtFOSE	(630.0 / 59.0) 810	(10.68 , 1.00) (0.01 , N/A , 0.0)	41.4	N/A 0.0 0.0	0.3116	N/A			
HFPO-DA	(285.0 / 169.0) 19573 (285.0 / 185.0) 57839	(6.47 , 1.00) (0.00 , N/A , -0.1)	291.7 233.9	2.9550 107.7 113.6	0.1714	N/A			
ADONA	(377.0 / 85.0) 97335 (377.0 / 251.0) 10740	(7.38 , 1.14) (N/A , 0.00 , 0.2)	385.7 53.3	0.1103 88.6 86.4	0.1919	N/A			
9Cl-Pf3ONS	(531.0 / 351.0) 230857 (533.0 / 353.0) 75298	(9.71 , 1.50) (N/A , 0.00 , 0.1)	619.8 271.0	0.3262 110.2 112.4	0.1496	N/A			
11Cl-PF3OUDS	(631.0 / 451.0) 143671 (633.0 / 453.0) 40065	(10.00 , 1.55) (N/A , 0.00 , 0.2)	74112.8 224.6	0.2789 84.3 86.8	0.2027	N/A			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (20)
Acquired: 2022/12/22 - 15:28

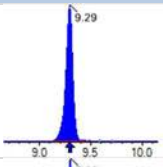
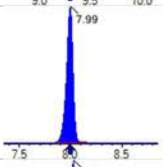
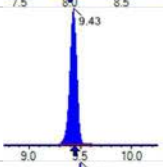
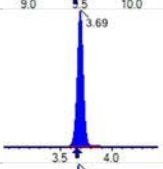
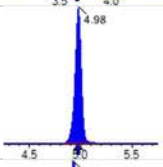
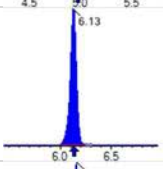
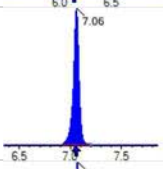
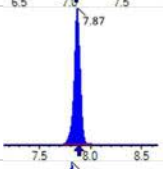
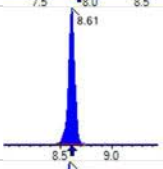
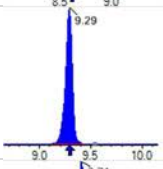
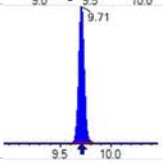
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
3:3FTCA	(241.0 / 177.0) 2241 (241.0 / 117.0) 3488	(4.46 , 0.90) (N/A , 0.01 , 0.0)	129.1 47.4	1.5563 93.0 92.7	0.3376	N/A			
5:3FTCA	(341.0 / 236.7) 22466 (341.0 / 217.0) 33225	(6.77 , 1.10) (N/A , 0.01 , 0.1)	186.3 140.9	1.4789 101.0 92.0	0.4699	N/A			
7:3FTCA	(441.0 / 317.0) 24607 (441.0 / 337.0) 20011	(8.58 , 1.40) (N/A , -0.01 , 0.5)	130.2 136.7	0.8132 97.1 97.5	0.4473	N/A			
PFEESA	(315.0 / 135.0) 46408 (315.0 / 83.0) 17618	(6.58 , 1.07) (N/A , 0.00 , 0.3)	409.0 123.5	0.3796 123.7 128.5	0.1567	N/A			
PFMPA	(229.0 / 85.0) 10348	(4.17 , 0.84) (N/A , 0.01 , 0.0)	332.5	N/A 0.0 0.0	0.1960	N/A			
PFMBA	(279.0 / 85.0) 31039	(5.37 , 1.08) (N/A , 0.01 , 0.0)	342.6	N/A 0.0 0.0	0.1701	N/A			
NFDHA	(295.0 / 201.0) 29898 (295.0 / 85.0) 26183	(6.01 , 0.98) (N/A , 0.00 , -0.1)	305.5 86.7	0.8757 99.2 100.0	0.2192	N/A			
13C3_PFBA_IIS	(216.0 / 172.0) 220364	(3.70 , N/A) (N/A , 0.04 , N/A)	762.6	N/A	1.5831 [1.0000]	158.3% { 140.3% }			
13C2_PFHxA_IIS	(315.1 / 270.0) 308893	(6.13 , N/A) (N/A , 0.01 , N/A)	626.5	N/A	1.3377 [1.0000]	133.8% { 130.9% }			
13C4_PFOA_IIS	(417.0 / 372.0) 324788	(7.87 , N/A) (N/A , -0.01 , N/A)	538.6	N/A	1.4773 [1.0000]	147.7% { 126.4% }			
13C5_PFNA_IIS	(468.0 / 423.0) 273024	(8.61 , N/A) (N/A , -0.01 , N/A)	347.7	N/A	1.4744 [1.0000]	147.4% { 116.4% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (20)
Acquired: 2022/12/22 - 15:28

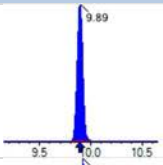
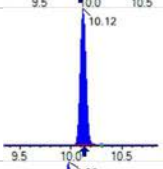
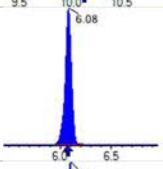
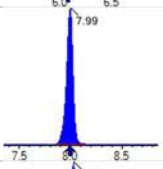
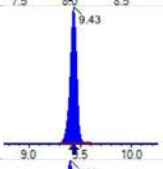
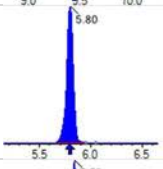
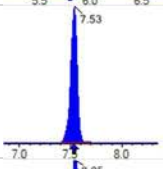
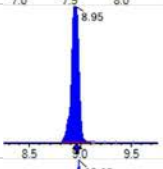
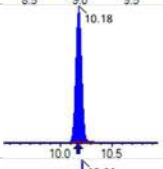
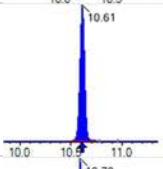
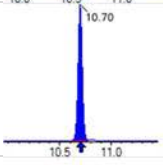
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDA_IIS	(515.1 / 470.1) 259769	(9.29 , N/A) (N/A , 0.00 , N/A)	405.3	N/A	1.4056 [1.0000]	140.6% { 138.8% }			
18O2_PFHxS_IIS	(403.0 / 83.9) 589240	(7.99 , N/A) (N/A , 0.00 , N/A)	721.7	N/A	1.4596 [1.0000]	146.0% { 132.1% }			
13C4_PFOS_IIS	(502.8 / 79.9) 508401	(9.43 , N/A) (N/A , -0.01 , N/A)	409.4	N/A	1.5928 [1.0000]	159.3% { 146.7% }			
13C4_PFBA_EIS	(217.0 / 172.0) 1740189	(3.69 , N/A) (N/A , 0.04 , N/A)	811.4	N/A	7.6727 [8.0000]	95.9% { 138.6% }			
13C5_PFPeA_EIS	(267.9 / 223.0) 875987	(4.98 , N/A) (N/A , 0.01 , N/A)	732.4	N/A	4.0758 [4.0000]	101.9% { 128.8% }			
13C5_PFHxA_EIS	(318.0 / 273.0) 630069	(6.13 , N/A) (N/A , 0.00 , N/A)	578.4	N/A	1.7725 [2.0000]	88.6% { 117.5% }			
13C4_PFHpA_EIS	(367.0 / 322.0) 666733	(7.06 , N/A) (N/A , 0.01 , N/A)	585.5	N/A	2.1501 [2.0000]	107.5% { 148.2% }			
13C8_PFOA_EIS	(421.0 / 376.0) 772787	(7.87 , N/A) (N/A , 0.00 , N/A)	984.8	N/A	2.1696 [2.0000]	108.5% { 129.7% }			
13C9_PFNA_EIS	(472.0 / 427.0) 304933	(8.61 , N/A) (N/A , -0.01 , N/A)	421.2	N/A	1.0157 [1.0000]	101.6% { 131.6% }			
13C6_PFDA_EIS	(519.0 / 474.0) 359728	(9.29 , N/A) (N/A , 0.00 , N/A)	409.9	N/A	0.9737 [1.0000]	97.4% { 130.7% }			
13C7_PFUnA_EIS	(570.0 / 525.0) 459582	(9.71 , N/A) (N/A , 0.00 , N/A)	484.2	N/A	0.8745 [1.0000]	87.5% { 123.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (20)
Acquired: 2022/12/22 - 15:28

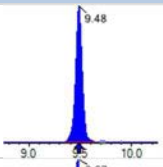
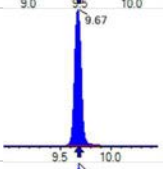
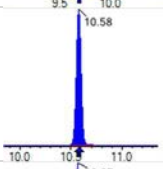
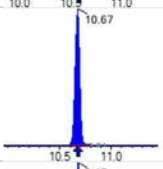
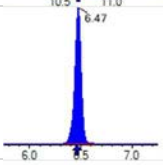
Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	S / N	Ion Ratio IR Vs MP% IR Vs CV%	Concentration [True] ng/mL	Q.C. Rec. {Area%CV}	Primary Transition	Confirmation Transition	Flag
13C2_PFDoA_EIS	(615.0 / 570.0) 492760	(9.89 , N/A) (N/A , 0.00 , N/A)	690.6	N/A	0.9395 [1.0000]	93.9% { 134.5% }			
13C2_PFTeDA_EIS	(715.0 / 670.0) 356477	(10.12 , N/A) (N/A , 0.00 , N/A)	604.8	N/A	1.0234 [1.0000]	102.3% { 139.7% }			
13C3_PFBS_EIS	(302.0 / 80.0) 1683162	(6.08 , N/A) (N/A , 0.01 , N/A)	813.7	N/A	1.6895 [2.0000]	84.5% { 126.3% }			
13C3_PFHxS_EIS	(402.0 / 80.0) 954703	(7.99 , N/A) (N/A , 0.00 , N/A)	790.7	N/A	1.8011 [2.0000]	90.1% { 124.3% }			
13C8_PFOS_EIS	(507.0 / 80.0) 1577950	(9.43 , N/A) (N/A , 0.00 , N/A)	517.1	N/A	1.8084 [2.0000]	90.4% { 141.3% }			
13C2_4:2FTS_EIS	(329.0 / 81.0) 282769	(5.80 , N/A) (N/A , 0.01 , N/A)	575.2	N/A	3.3511 [4.0000]	83.8% { 125.6% }			
13C2_6:2FTS_EIS	(429.0 / 81.0) 386975	(7.53 , N/A) (N/A , 0.00 , N/A)	766.6	N/A	3.8091 [4.0000]	95.2% { 115.1% }			
13C2_8:2FTS_EIS	(529.0 / 81.0) 301510	(8.95 , N/A) (N/A , 0.00 , N/A)	386.1	N/A	2.9648 [4.0000]	74.1% { 95.4% }			
13C8_PFOSA_EIS	(506.0 / 78.0) 1310630	(10.18 , N/A) (N/A , 0.00 , N/A)	699.6	N/A	1.1883 [2.0000]	59.4% { 96.1% }			
D3_NMeFOSA_EIS	(515.0 / 169.0) 115323	(10.61 , N/A) (N/A , 0.00 , N/A)	546.6	N/A	0.4789 [2.0000]	23.9% { 40.2% }			
D5_NEtFOSA_EIS	(531.1 / 169.0) 89526	(10.70 , N/A) (N/A , 0.00 , N/A)	661.0	N/A	0.4027 [2.0000]	20.1% { 29.5% }			

APPL
AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES
A METIRI GROUP COMPANY

Chemist: DAG
Instrument: Saphira
Type: Sciex Q3 5500

Sample I.D.: BBL0403-MRL1
DF , IV: 1 , 10.0µL
Acquisition Method: 1633 2022-12-21.dam

Quant Method: 1633 - 2022-12-21
Path: S2022-12-22A (20)
Acquired: 2022/12/22 - 15:28

Analyte	(Q1 / Q3) Area Counts*min	R.T. (R.T [min] , R.R.T.) (ΔRT-I[min], ΔRT-CV[min], ΔRT ion[s])	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) 595382	(9.48 , N/A) (N/A , 0.00 , N/A)	395.3	N/A	2.8695 [4.0000]	71.7% { 112.6% }			
D5_EtFOSAA_EIS	(589.0 / 419.0) 629489	(9.67 , N/A) (N/A , 0.00 , N/A)	298.3	N/A	3.4421 [4.0000]	86.1% { 151.7% }			
D7_NMeFOSE_EIS	(623.2 / 58.9) 226954	(10.58 , N/A) (N/A , 0.00 , N/A)	1184.1	N/A	6.7120 [20.0000]	33.6% { 52.2% }			
D9_NEtFOSE_EIS	(639.2 / 58.9) 101534	(10.67 , N/A) (N/A , 0.00 , N/A)	798.1	N/A	6.5959 [20.0000]	33.0% { 51.2% }			
13C3_HFPODA_EIS	(287.0 / 169.0) 1503102	(6.47 , N/A) (N/A , 0.00 , N/A)	659.3	N/A	7.9533 [8.0000]	99.4% { 123.5% }			

PREPARATION BATCH SUMMARY

EPA 1633

Laboratory:	APPL, LLC			Work Order:	22L0134
Client:	AECOM			Project:	Red Hill AFFF Assessment Sampling
Batch:	BBL0403	Batch Matrix:	Water	Preparation:	1633

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT g	FINAL VOL. ml
AF-RHMW16-WGN01B-2212W2	22L0134-01	12/20/22 15:01	499.65	2.00
AF-RHMW16-WGN01B-2212W2	22L0134-01RE1	12/20/22 15:01	499.65	2.00
AF-RHMW17D-WGN01B-2212W2	22L0134-02	12/20/22 15:01	512.44	2.00
AF-RHMW17D-WGN01B-2212W2	22L0134-02RE1	12/20/22 15:01	512.44	2.00
AF-RHMW17D-WGN02B-2212W2	22L0134-03	12/20/22 15:01	523.23	2.00
AF-RHMW17D-WGN02B-2212W2	22L0134-03RE1	12/20/22 15:01	523.23	2.00
Blank	BBL0403-BLK1	12/20/22 15:01	500.00	2.00
LCS	BBL0403-BS1	12/20/22 15:01	500.00	2.00
MRL Check	BBL0403-MRL1	12/20/22 15:01	500.00	2.00

PREPARATION BENCH SHEET
Organics

Print Date/Time: 12/22/2022 3:42 pm

BBL0403

Matrix: Water

Prepared using: PFAS - 1633

Analyses	Spiking Solution(s)	Surrogate Solution(s)
1633	22L0269 PFAS - MIX 1633 10ng/mL	22L0273 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
22L0134-01	AF-RHMW16-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	499.65	2		0	"Report relevant surrogates"
22L0134-01RE1	AF-RHMW16-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	499.65	2		0	"Report relevant surrogates"
22L0134-02	AF-RHMW17D-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	512.44	2		0	"Report relevant surrogates"
22L0134-02RE1	AF-RHMW17D-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	512.44	2		0	"Report relevant surrogates"
22L0134-03	AF-RHMW17D-WGN02B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	523.23	2		0	"Report relevant surrogates"
22L0134-03RE1	AF-RHMW17D-WGN02B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	523.23	2		0	"Report relevant surrogates"
22L0141-01	AF-RHMW02-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	580.17	2		0	"Report relevant surrogates"
22L0141-01RE1	AF-RHMW02-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	580.17	2		0	"Report relevant surrogates"
22L0141-02	AF-RHMW03-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	570.34	2		0	"Report relevant surrogates"
22L0141-02RE1	AF-RHMW03-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	570.34	2		0	"Report relevant surrogates"
22L0141-03	AF-RHMW225401-WGN01B-2212 W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	561.73	2		0	"Report relevant surrogates"
22L0141-03RE1	AF-RHMW225401-WGN01B-2212 W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	561.73	2		0	"Report relevant surrogates"
BBL0403-BLK1	Blank			12/20/2022 3:01:00PM	500	2	0	0	
BBL0403-BS1	LCS			12/20/2022 3:01:00PM	500	2	200	0	
BBL0403-MRL1	MRL Check			12/20/2022 3:01:00PM	500	2	20	0	

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

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PREPARATION BENCH SHEET
Organics

Print Date/Time: 12/22/2022 3:42 pm

BBL0403

(Continued)

Matrix: Water

Prepared using: PFAS - 1633

Analyses
1633

Spiking Solution(s)

22L0269	PFAS - MIX 1633 10ng/mL

Surrogate Solution(s)

22L0273	MPFAC-HIF-ES 20.0ng/mL

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
22L0369	Reagent - 1.0% Ammonia Hydroxide	219481

Batch Comments:
Spiked by: DAG 12/20/22 4:20
Balance #: WB2
Cartridge: Biotage
Concentration: 12/21/22 4:10-6:00

Spiking Witnessed By _____ Date _____

Preparation Reviewed By _____ Date _____

Extracts Received By _____ Date _____

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PREPARATION BENCH SHEET
Organics

Print Date/Time: 12/22/2022 9:34 am

BBL0403

Matrix: Water

Prepared using: PFAS - 1633

Analyses	Spiking Solution(s)	Surrogate Solution(s)
1633		

Lab Number	Sample and Source ID	Date Due	Extract by	Prepared	Initial (g)	Final (ml)	ul Spike	ul Surrogate	Extraction Comments
22L0134-01	AF-RHMW16-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-01RE1	AF-RHMW16-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-02	AF-RHMW17D-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-02RE1	AF-RHMW17D-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-03	AF-RHMW17D-WGN02B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-03RE1	AF-RHMW17D-WGN02B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-01	AF-RHMW02-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-01RE1	AF-RHMW02-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-02	AF-RHMW03-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-02RE1	AF-RHMW03-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-03	AF-RHMW225401-WGN01B-2212 W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-03RE1	AF-RHMW225401-WGN01B-2212 W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
BBL0403-BLK1	Blank			12/20/2022 3:01:00PM	500	2			
BBL0403-BS1	LCS			12/20/2022 3:01:00PM	500	2			
BBL0403-MRL1	MRL Check			12/20/2022 3:01:00PM	500	2			

tart Date/Time _____

topDate/Time _____

Reagents

Standard	Description	LotNum

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

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PREPARATION BENCH SHEET
Organics

Print Date/Time: 12/20/2022 3:13 pm

BBL0403

Matrix: Water

Prepared using: PFAS - 1633

Analyses	Spiking Solution(s)	Surrogate Solution(s)
1633		

Lab Number	Sample and Source ID	Date Due	Extract by	Prepared	Initial (g)	Final (ml)	ul Spike	ul Surrogate	Extraction Comments
22L0134-01	AF-RHMW16-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-02	AF-RHMW17D-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-03	AF-RHMW17D-WGN02B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-01	AF-RHMW02-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-02	AF-RHMW03-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-03	AF-RHMW225401-WGN01B-2212 W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
BBL0403-BLK1	Blank			12/20/2022 3:01:00PM	500	2			
BBL0403-BS1	LCS			12/20/2022 3:01:00PM	500	2			
BBL0403-MRL1	MRL Check			12/20/2022 3:01:00PM	500	2			

tart Date/Time _____

topDate/Time _____

Reagents

Standard	Description	LotNum

piking Witnessed By _____ Date _____

Preparation Reviewed By _____ Date _____

Extracts Received By _____ Date _____

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PREPARATION BENCH SHEET
Organics

Print Date/Time: 12/20/2022 3:02 pm

BBL0403

Matrix: Water

Prepared using: PFAS - 1633

Analyses	Spiking Solution(s)	Surrogate Solution(s)
1633		

Lab Number	Sample and Source ID	Date Due	Extract by	Prepared	Initial (g)	Final (ml)	ul Spike	ul Surrogate	Extraction Comments
22L0134-01	AF-RHMW16-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-02	AF-RHMW17D-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-03	AF-RHMW17D-WGN02B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-01	AF-RHMW02-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-02	AF-RHMW03-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-03	AF-RHMW225401-WGN01B-2212 W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
BBL0403-BLK1	Blank			12/20/2022 3:01:00PM	500	2			
BBL0403-BS1	LCS			12/20/2022 3:01:00PM	500	2			
BBL0403-MRL1	MRL Check			12/20/2022 3:01:00PM	500	2			

tart Date/Time _____

topDate/Time _____

Reagents

Standard	Description	LotNum

piking Witnessed By _____ Date _____

Preparation Reviewed By _____ Date _____

Extracts Received By _____ Date _____

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PREPARATION BENCH SHEET
Organics

Print Date/Time: 12/20/2022 3:02 pm

BBL0403

Matrix: Water

Prepared using: PFAS - 1633

Analyses	Spiking Solution(s)	Surrogate Solution(s)
1633		

Lab Number	Sample and Source ID	Date Due	Extract by	Prepared	Initial (g)	Final (ml)	ul Spike	ul Surrogate	Extraction Comments
22L0134-01	AF-RHMW16-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-02	AF-RHMW17D-WGN01B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0134-03	AF-RHMW17D-WGN02B-2212W2	12/22/2022	01/13/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-01	AF-RHMW02-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-02	AF-RHMW03-WGN01LF-2212W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
22L0141-03	AF-RHMW225401-WGN01B-2212 W3	01/03/2023	01/16/2023	12/20/2022 3:01:00PM	500	2			"Report relevant surrogates"
BBL0403-BLK1	Blank			12/20/2022 3:01:00PM	500	2			
BBL0403-BS1	LCS			12/20/2022 3:01:00PM	500	2			
BBL0403-MRL1	MRL Check			12/20/2022 3:01:00PM	500	2			

tart Date/Time _____

topDate/Time _____

Reagents

Standard	Description	LotNum

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

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INJECTION LOG - ANALYSIS SEQUENCE SUMMARY

EPA 1633

Laboratory:	APPL, LLC	SDG:	
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Sequence:	SB03941	Instrument:	Saphira
Calibration:	2252011		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	SB03941-CAL1	S2022-12-21A (1)	12/21/22 14:26
Cal Standard	SB03941-CAL2	S2022-12-21A (2)	12/21/22 14:39
Cal Standard	SB03941-CAL3	S2022-12-21A (3)	12/21/22 14:51
Cal Standard	SB03941-CAL4	S2022-12-21A (4)	12/21/22 15:04
Cal Standard	SB03941-CAL5	S2022-12-21A (5)	12/21/22 15:17
Cal Standard	SB03941-CAL6	S2022-12-21A (6)	12/21/22 15:30
Cal Standard	SB03941-CAL7	S2022-12-21A (7)	12/21/22 15:42
Cal Standard	SB03941-CAL8	S2022-12-21A (8)	12/21/22 15:55
Initial Cal Blank	SB03941-ICB1	S2022-12-21A (9)	12/21/22 16:08
Secondary Cal Check	SB03941-SCV1	S2022-12-21A (10)	12/21/22 16:20

INJECTION LOG - ANALYSIS SEQUENCE SUMMARY

EPA 1633

Laboratory:	APPL, LLC	SDG:	
Client:	AECOM	Project:	Red Hill AFFF Assessment Sampling
Sequence:	SB03951	Instrument:	Saphira
Calibration:	2252011		

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Blank	SB03951-CCB1	S2022-12-22A (1)	12/22/22 11:01
Low Cal Check	SB03951-LCV1	S2022-12-22A (2)	12/22/22 11:14
Calibration Check	SB03951-CCV1	S2022-12-22A (3)	12/22/22 11:26
Calibration Blank	SB03951-CCB2	S2022-12-22A (4)	12/22/22 12:04
Calibration Check	SB03951-CCV2	S2022-12-22A (16)	12/22/22 14:37
Calibration Blank	SB03951-CCB3	S2022-12-22A (17)	12/22/22 14:50
Blank	BBL0403-BLK1	S2022-12-22A (18)	12/22/22 15:02
LCS	BBL0403-BS1	S2022-12-22A (19)	12/22/22 15:15
MRL Check	BBL0403-MRL1	S2022-12-22A (20)	12/22/22 15:28
AF-RHMW16-WGN01B-2212W2	22L0134-01	S2022-12-22A (21)	12/22/22 15:40
AF-RHMW16-WGN01B-2212W2	22L0134-01RE1	S2022-12-22A (22)	12/22/22 15:53
AF-RHMW17D-WGN01B-2212W2	22L0134-02	S2022-12-22A (23)	12/22/22 16:06
AF-RHMW17D-WGN01B-2212W2	22L0134-02RE1	S2022-12-22A (24)	12/22/22 16:19
AF-RHMW17D-WGN02B-2212W2	22L0134-03	S2022-12-22A (25)	12/22/22 16:31
AF-RHMW17D-WGN02B-2212W2	22L0134-03RE1	S2022-12-22A (26)	12/22/22 16:44
Calibration Check	SB03951-CCV3	S2022-12-22A (33)	12/22/22 18:13
Calibration Blank	SB03951-CCB4	S2022-12-22A (34)	12/22/22 18:25

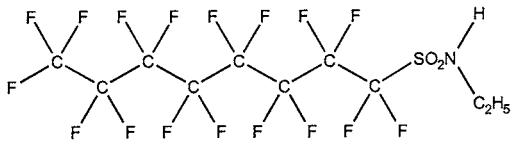
WELLINGTON LABORATORIES

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:

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HANDLING:

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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.

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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.

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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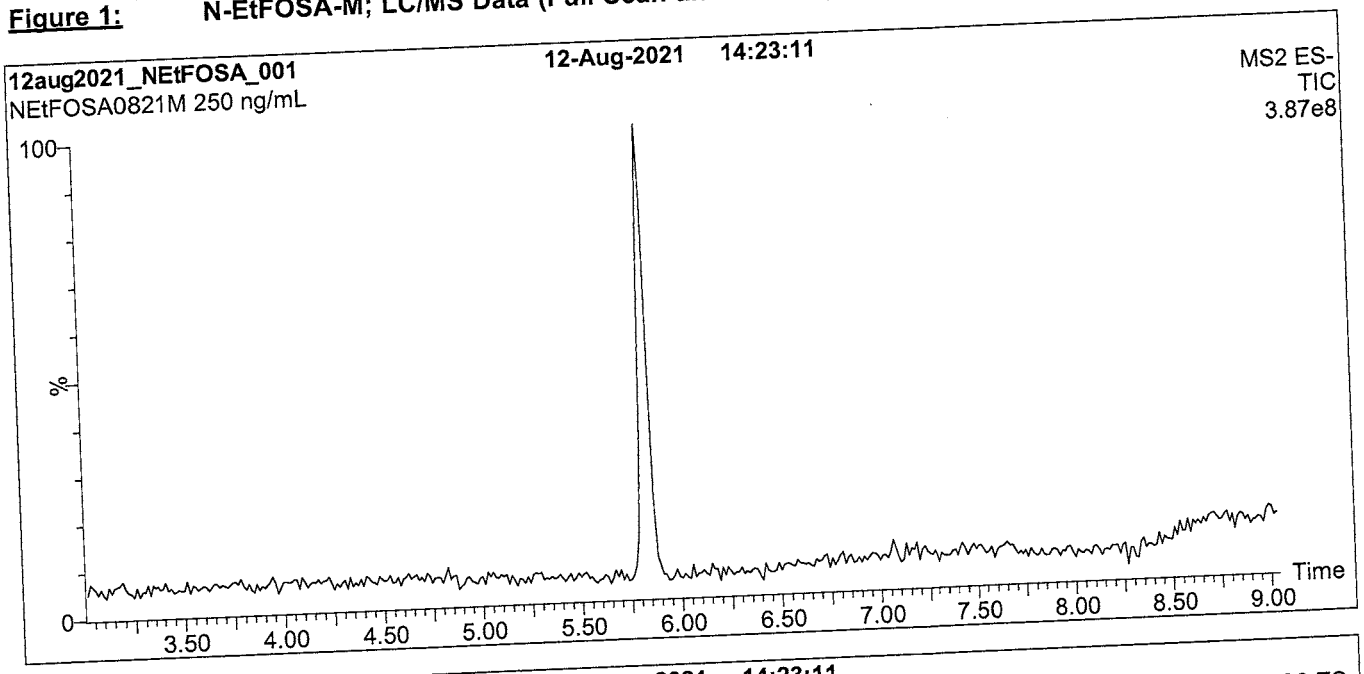
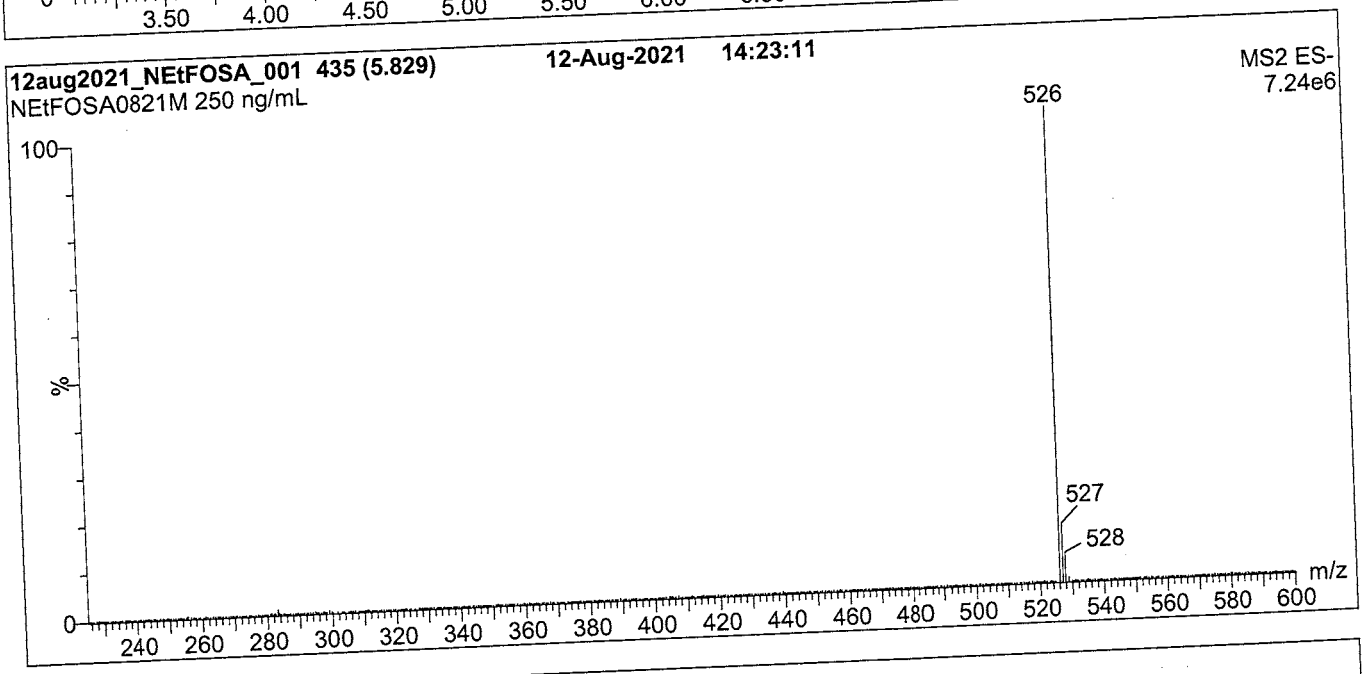
Figure 1: **N-EtFOSA-M; LC/MS Data (Full Scan and Mass Spectrum)**





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

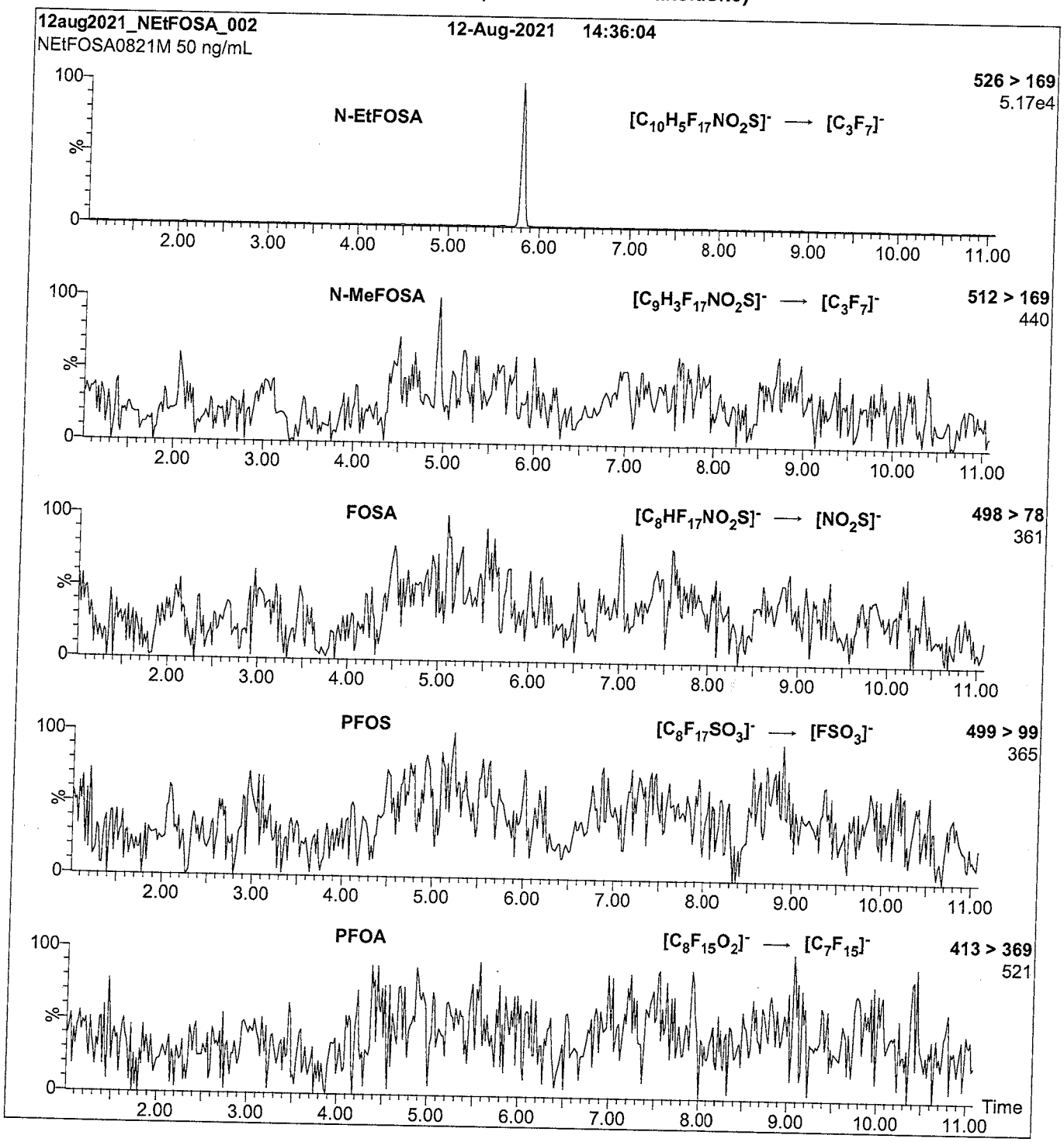
Flow: 300 µL/min

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

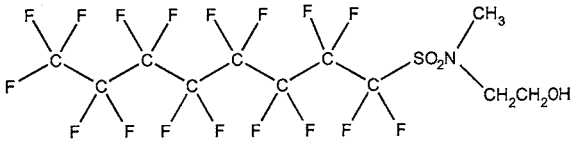
WELLINGTON LABORATORIES

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

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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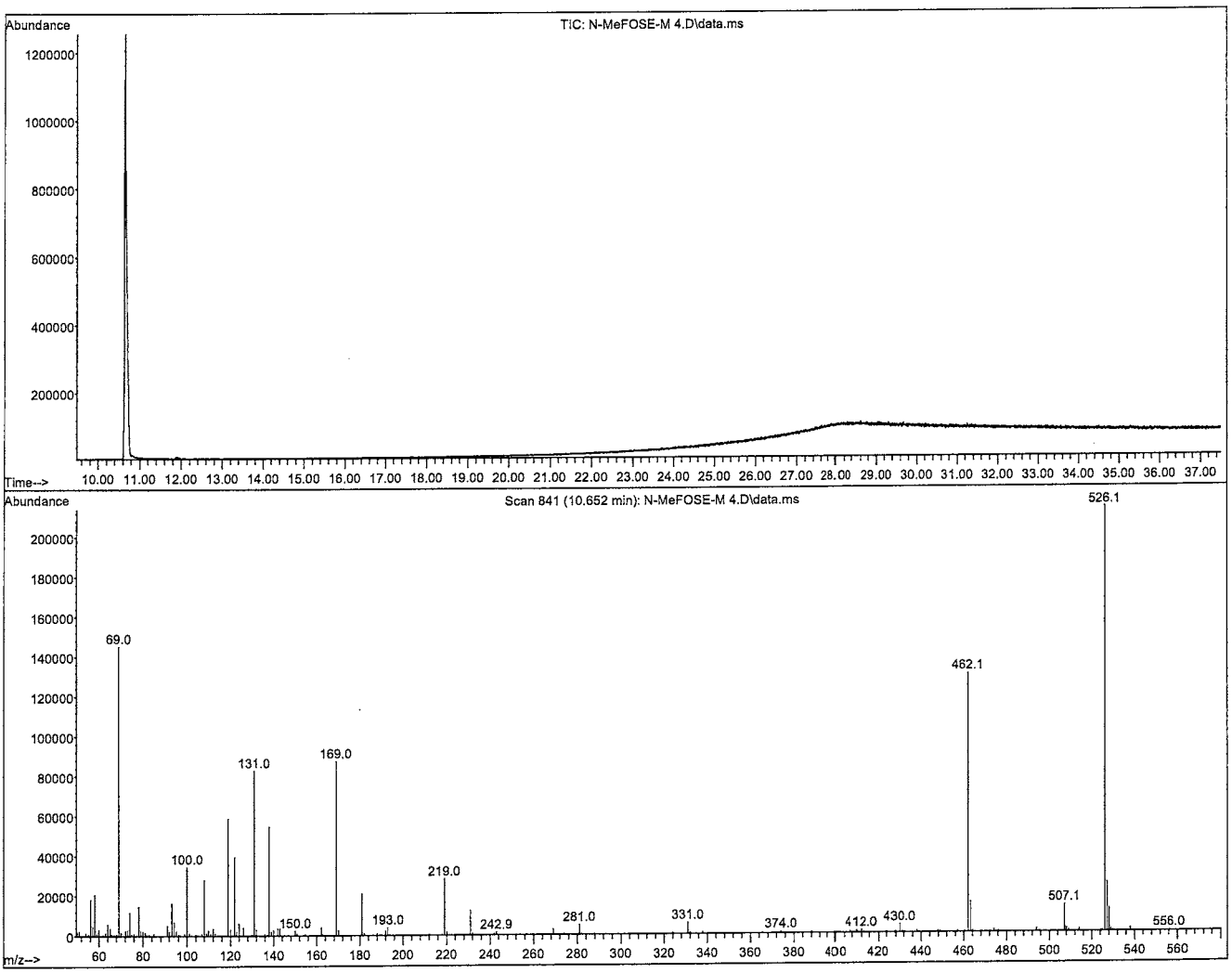
Figure 1: **N-MeFOSE-M; HRGC/LRMS Data (Full Scan and Mass Spectrum)**



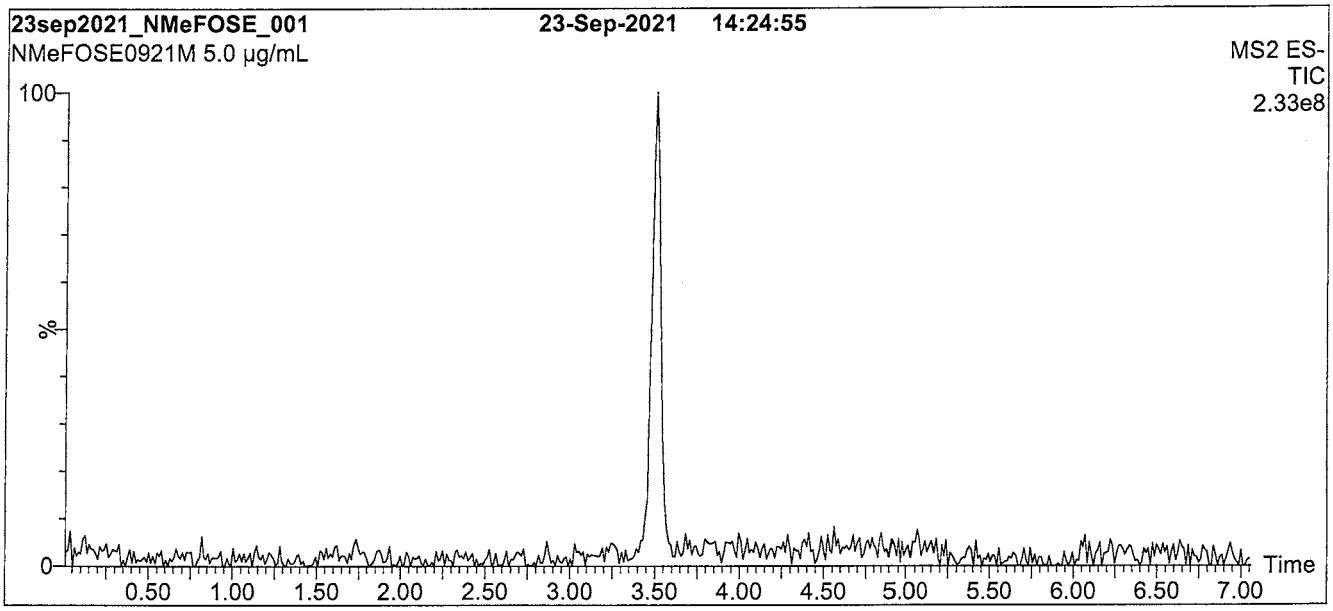
Conditions for Figure 1:

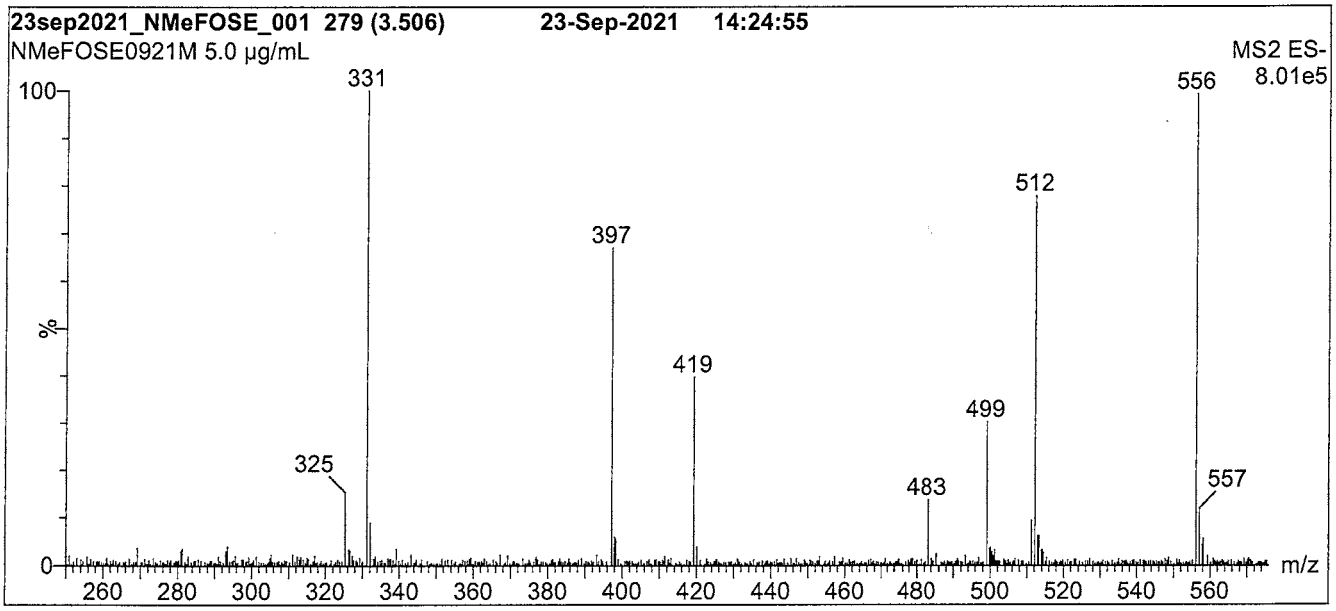
Agilent 7890A HRGC
Agilent 5975C MSD

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

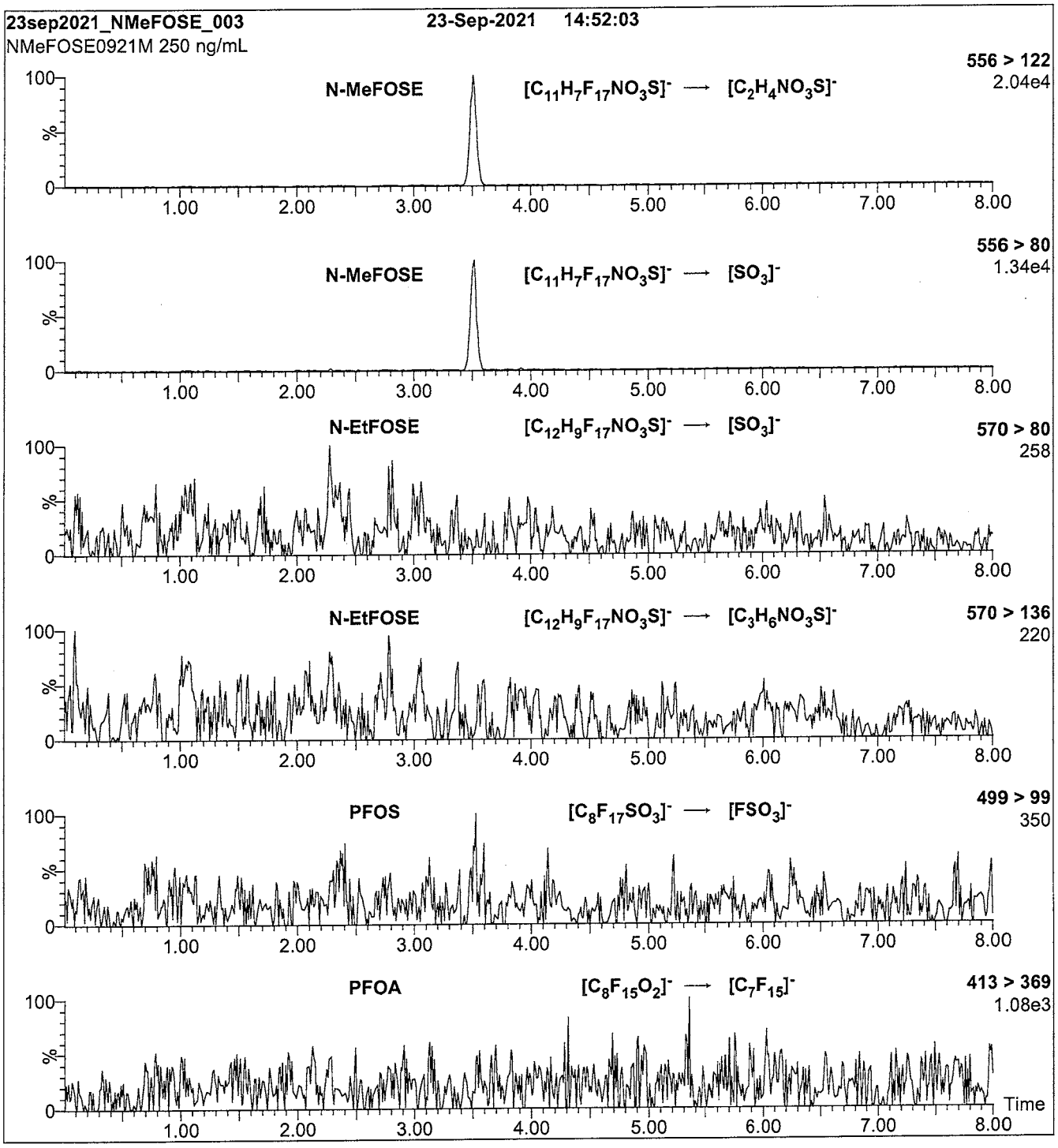
Flow: 300 µL/min

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

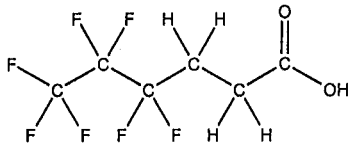
Description:	PFAS - SAS N-MeFOSE 50ug/mL	Expires:	09/23/2026
Standard Type:	Analyte Spike	Prepared:	09/22/2021
Solvent:	MeOH	Prepared By:	Wellington Laboratories (Lot#: NMeFOSE0921M)
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 16:06 by HGH

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
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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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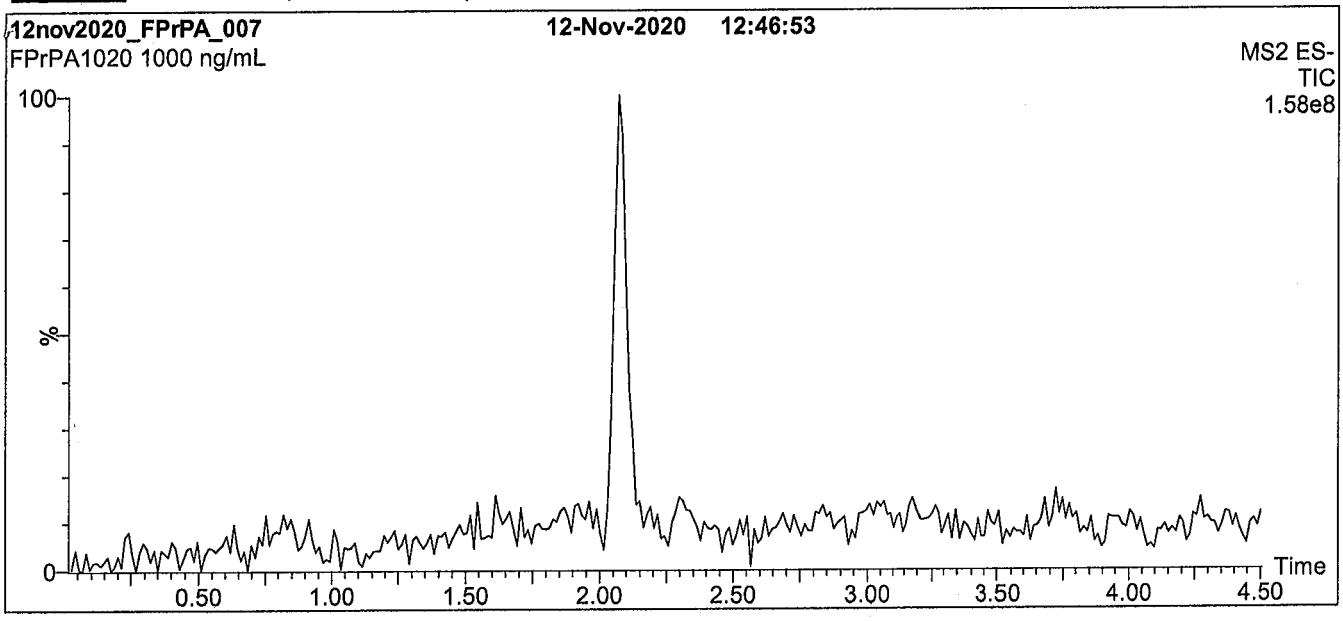
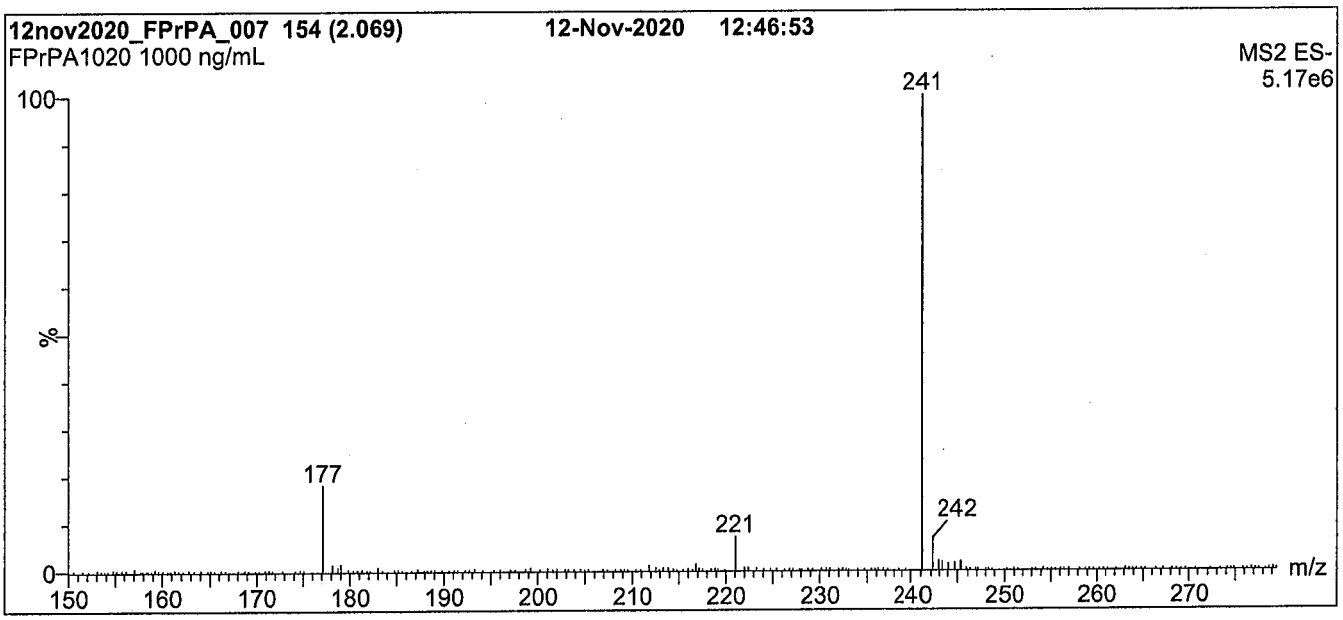
Figure 1: **FPrPA; LC/MS Data (TIC and Mass Spectrum)**





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

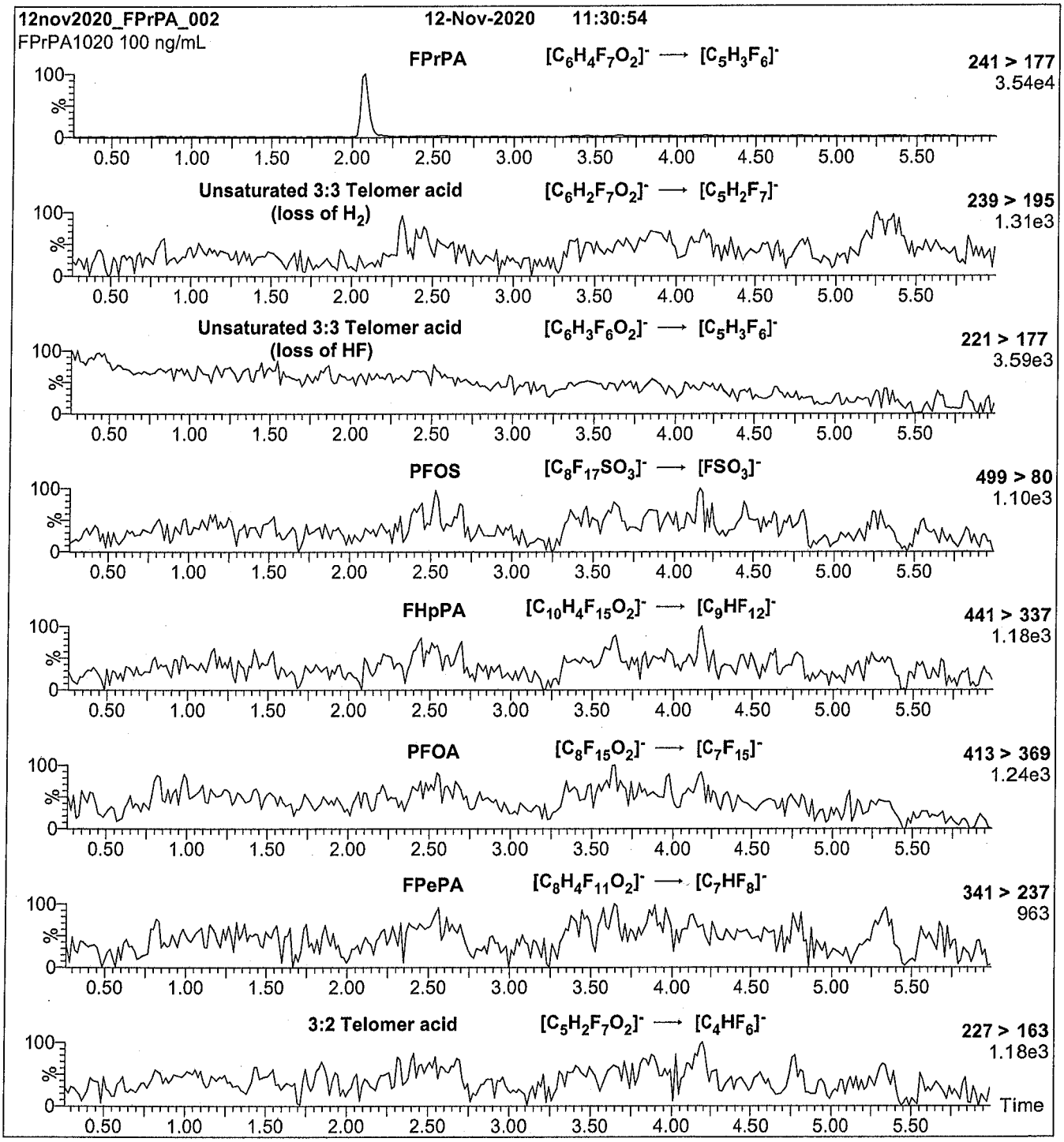
Flow: 300 µL/min

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

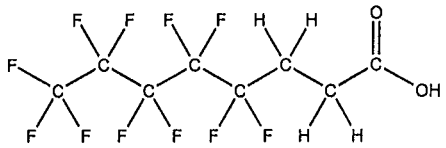
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

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SYNTHESIS / CHARACTERIZATION:

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

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

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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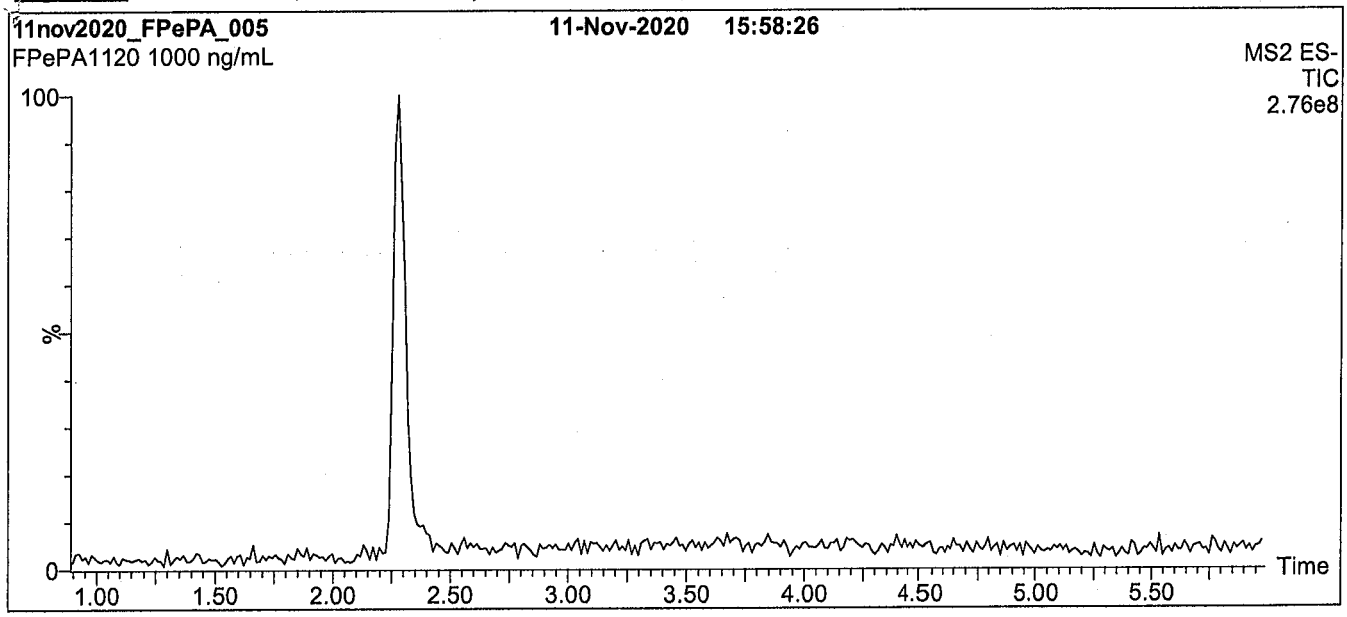
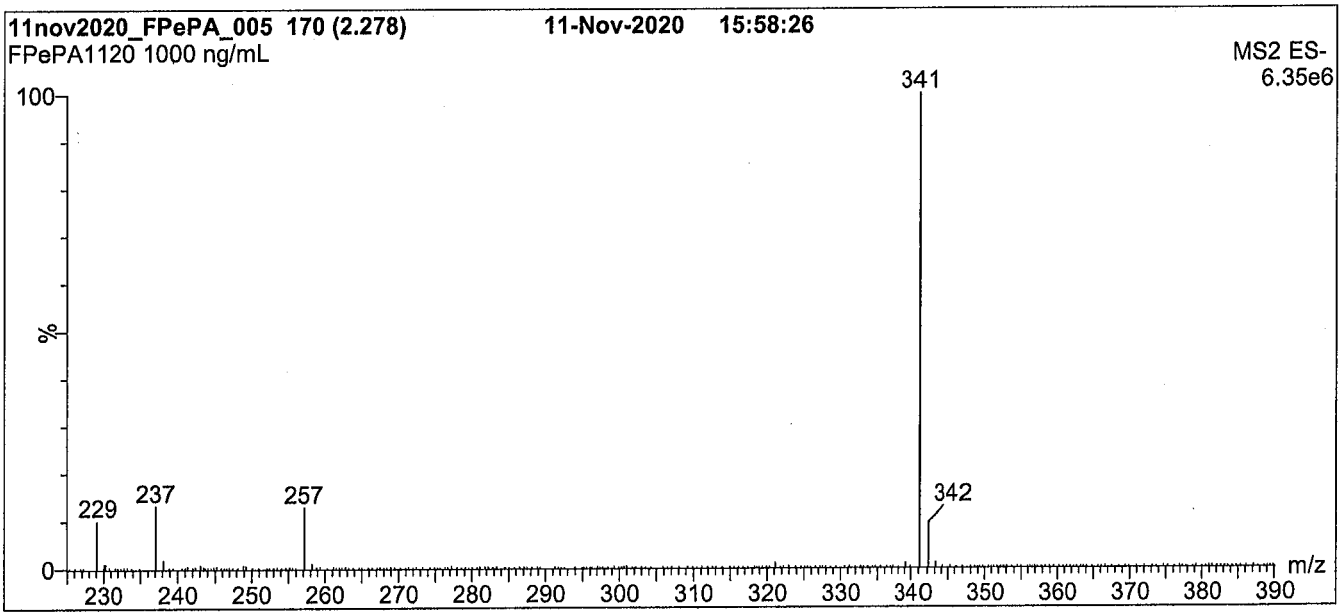
Figure 1: **FPePA; LC/MS Data (TIC and Mass Spectrum)**





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

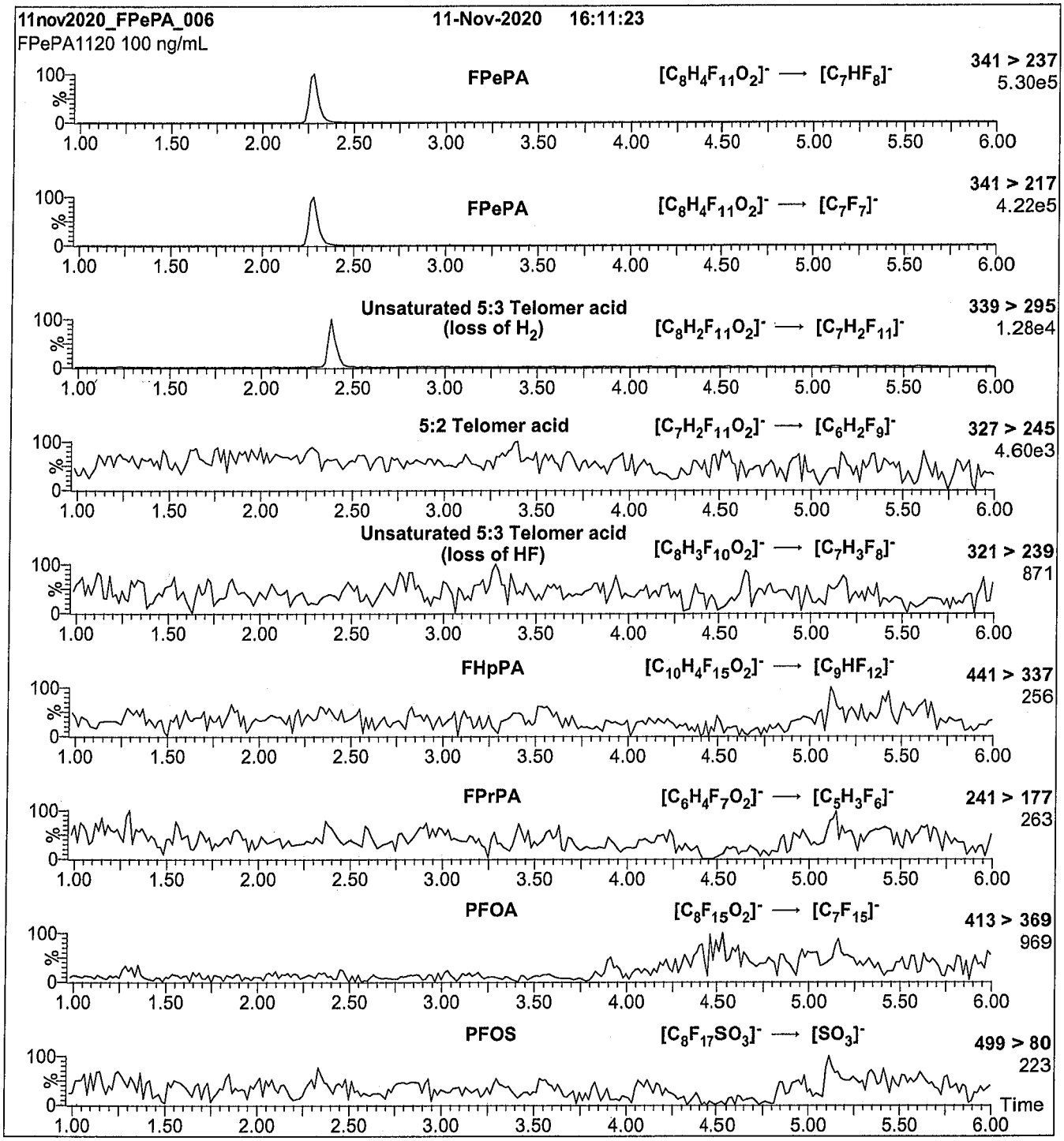
Flow: 300 µL/min

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		

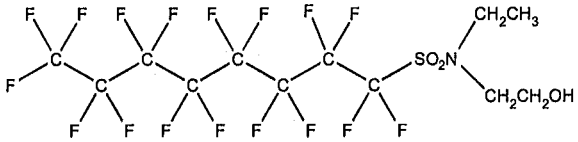
Analyte	Parent	CAS Number	Concentration	Units
5:3 FTA		914637-49-3	50	ug/mL

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

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

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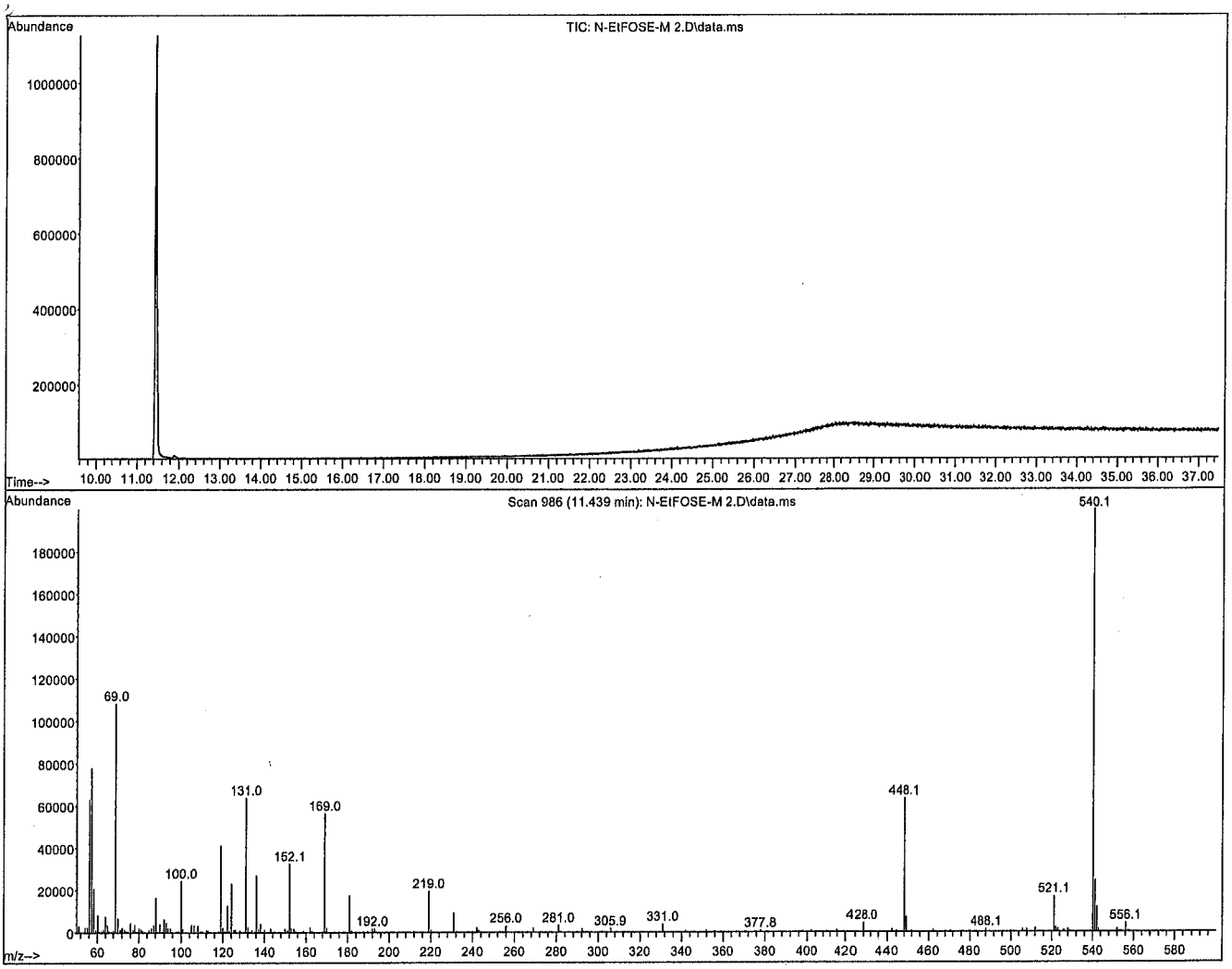
Figure 1: **N-EtFOSE-M; HRGC/LRMS Data (Full Scan and Mass Spectrum)**



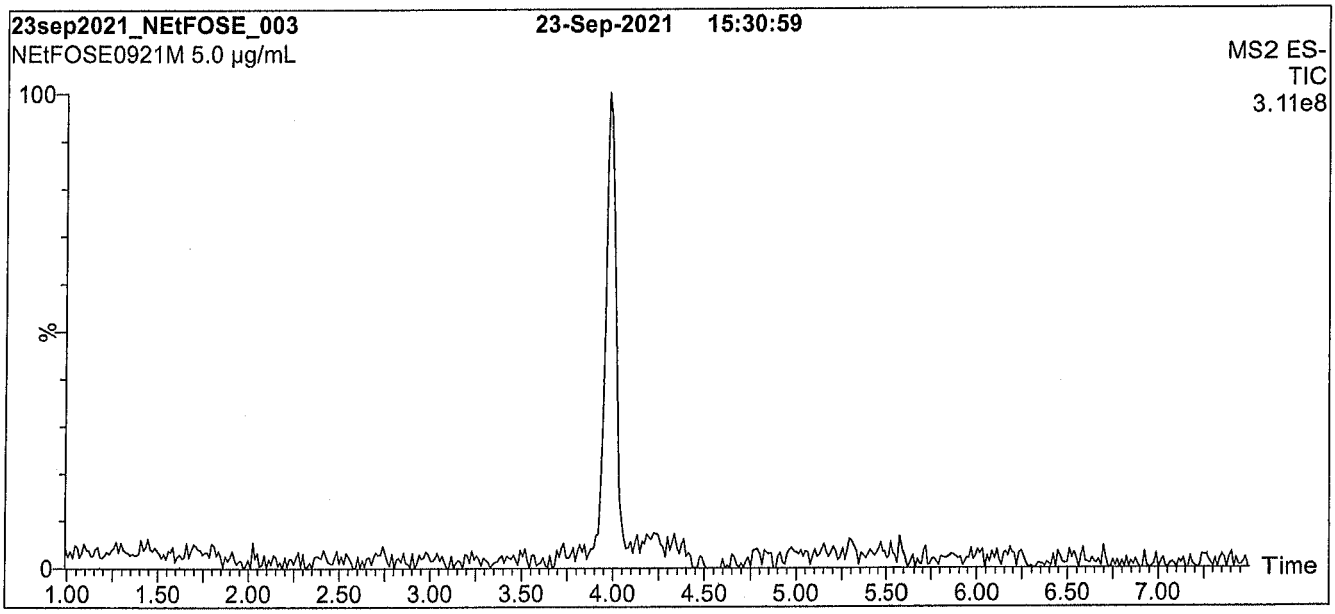
Conditions for Figure 1:

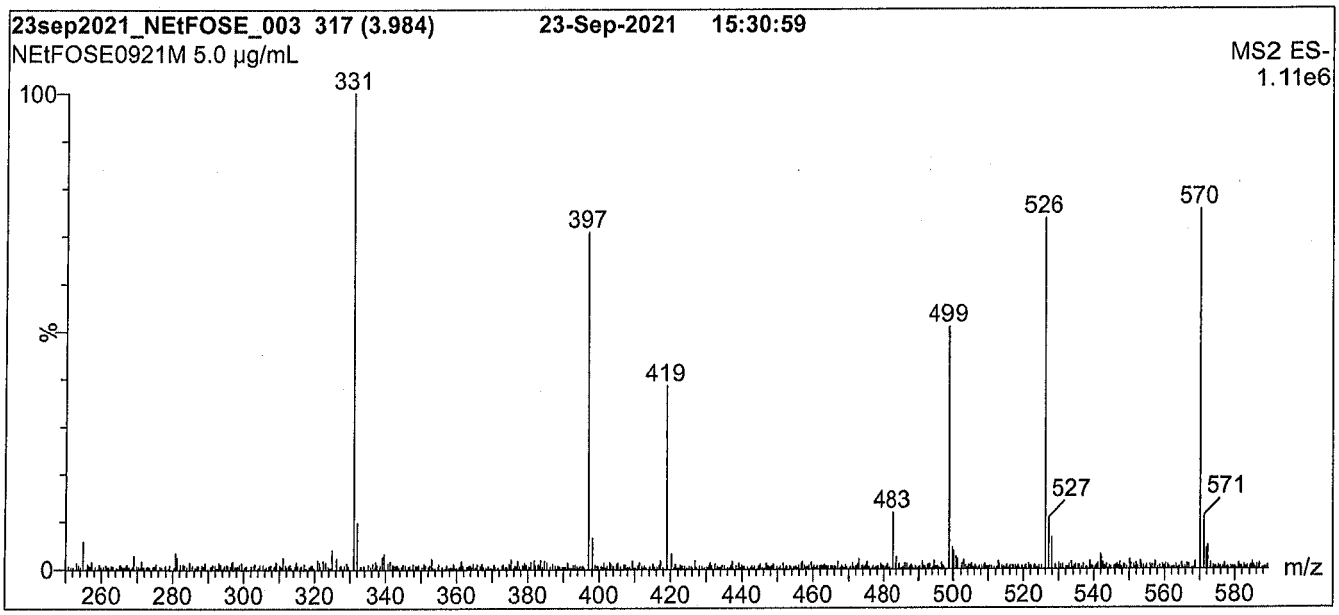
Agilent 7890A HRGC
Agilent 5975C MSD

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

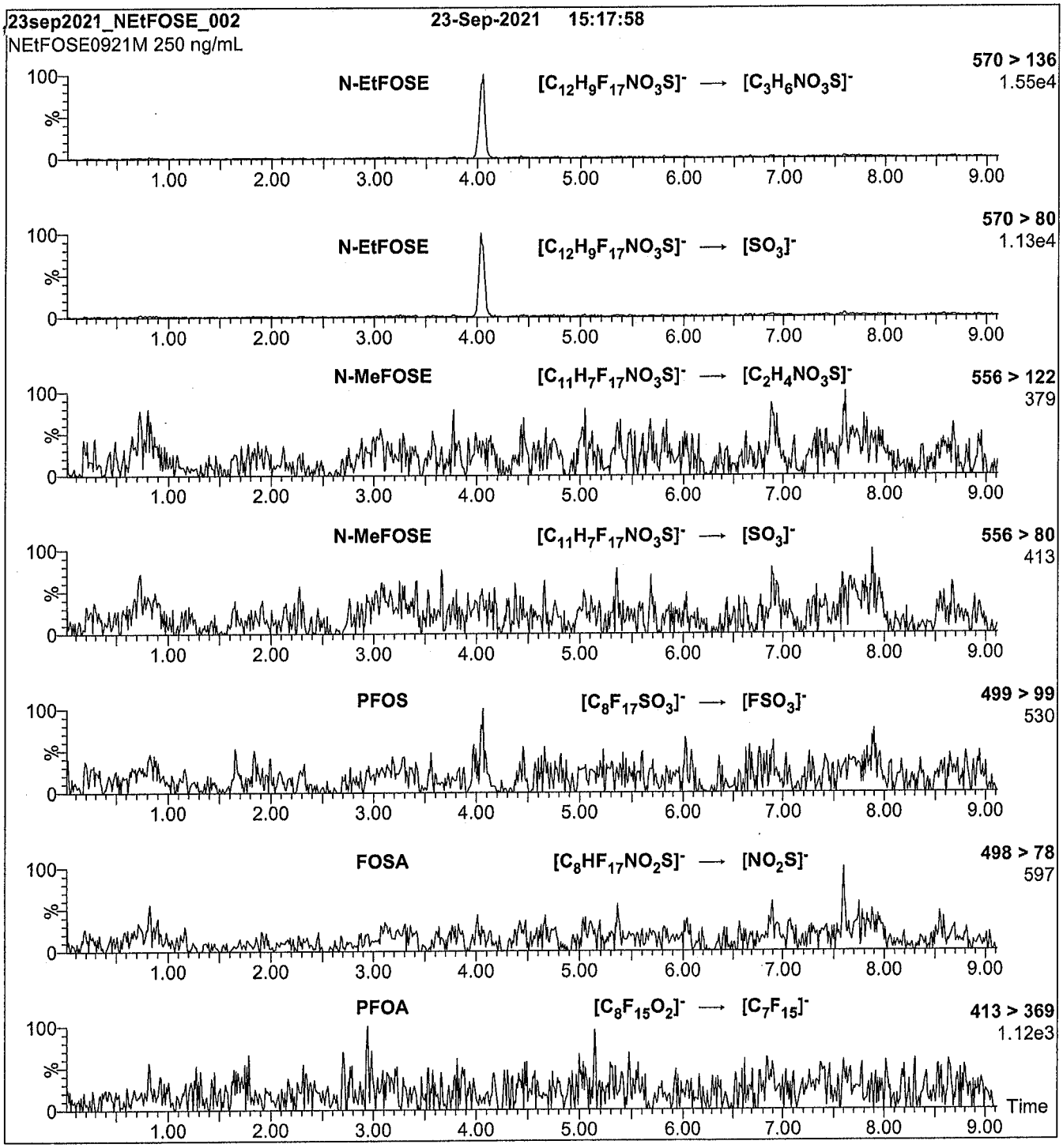
Flow: 300 µL/min

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

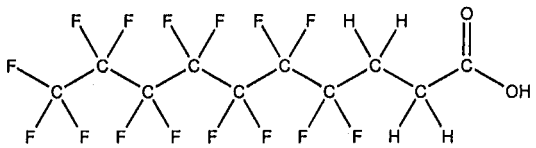
Description:	PFAS - SAS EtFOSE 50ug/mL	Expires:	06/05/2022
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Hart Hedgpeth
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	12/07/2021 17:22 by HGH
Comments:	5:3 FTCA 50.0ug/mL		

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.

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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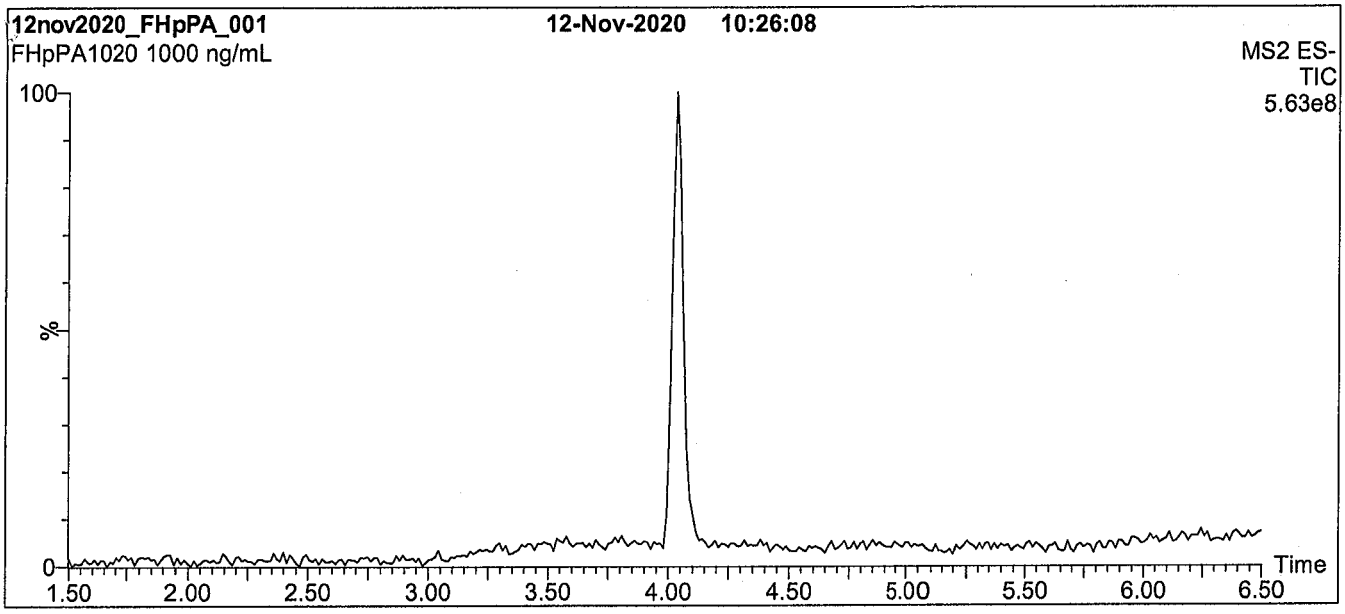

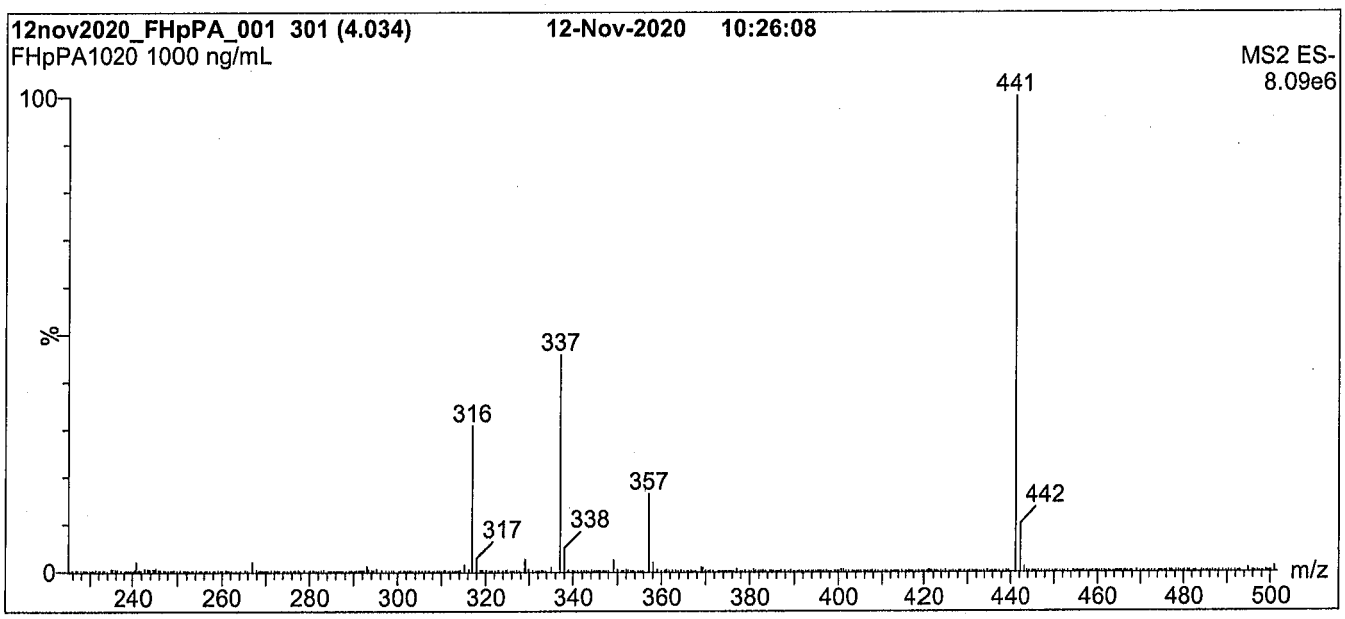

Conditions for Figure 1:

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

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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

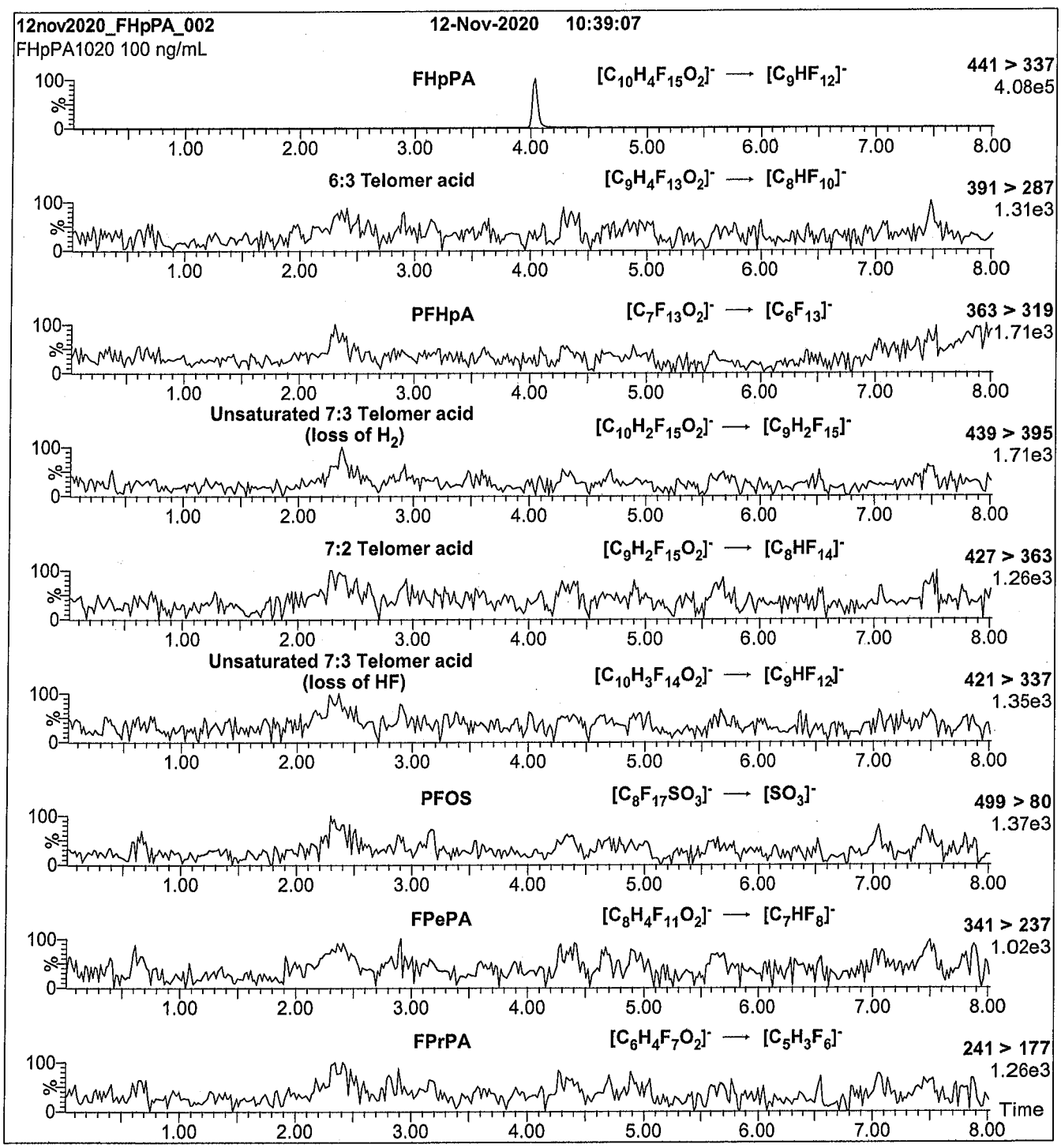
Flow: 300 µL/min

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

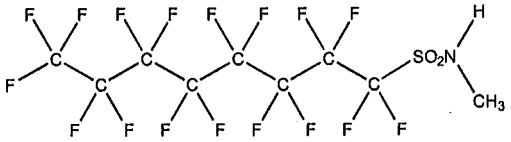
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

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

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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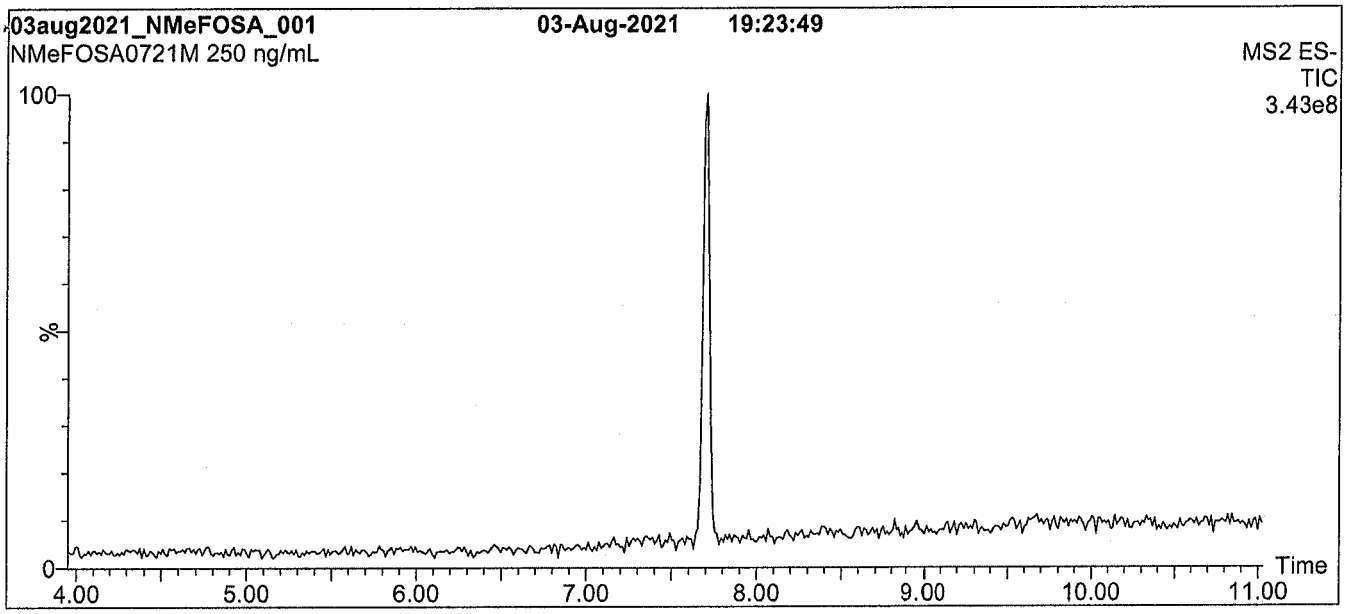
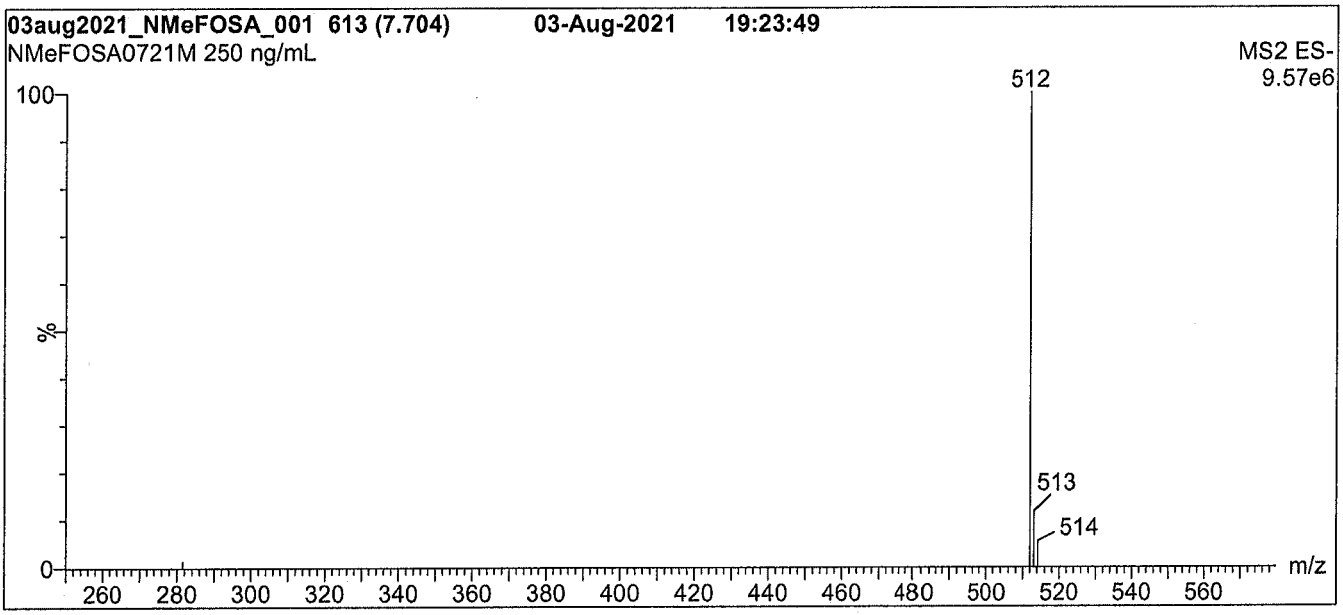
Figure 1: **N-MeFOSA-M; LC/MS Data (Full Scan and Mass Spectrum)**





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

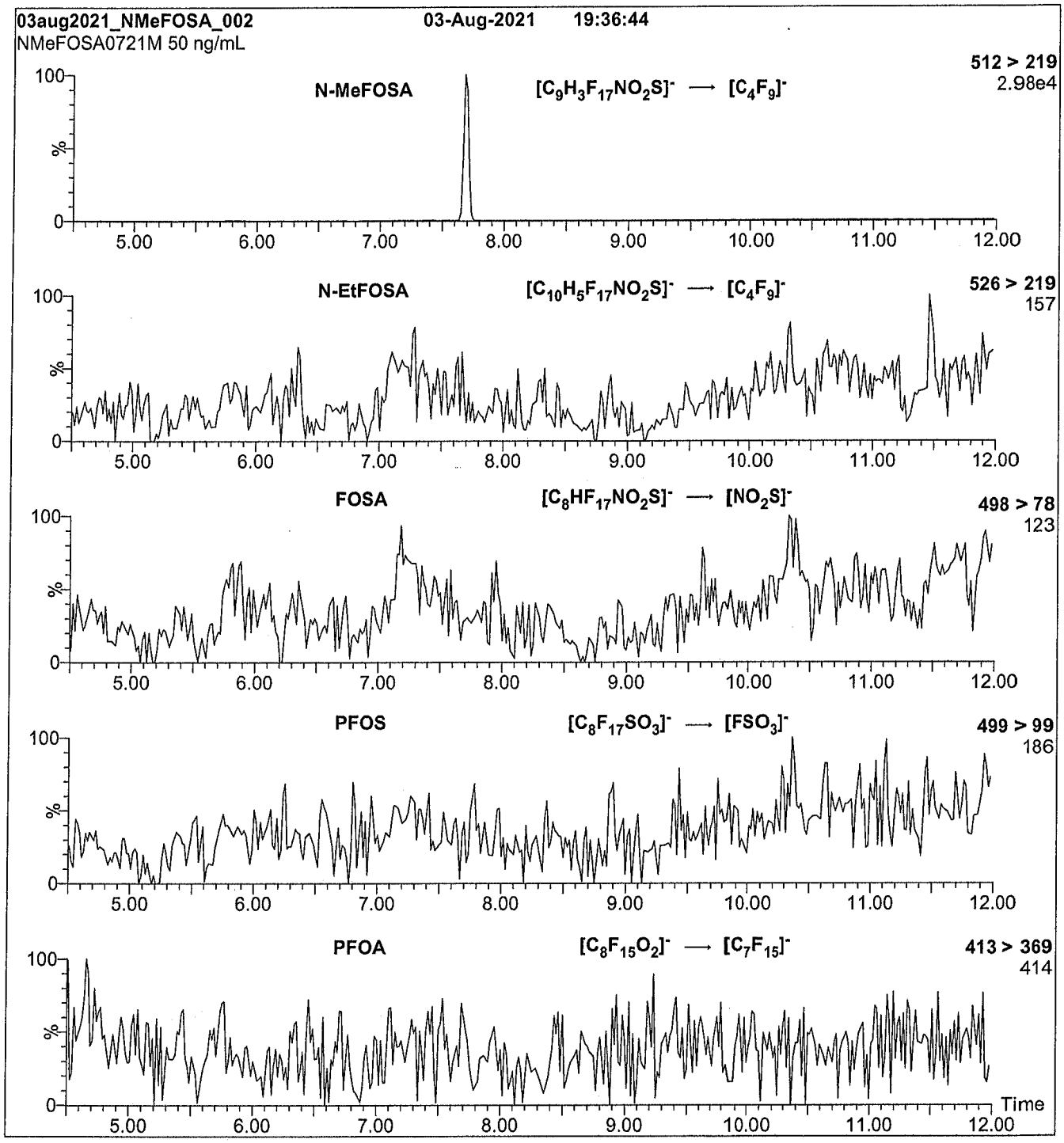
Flow: 300 µL/min

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

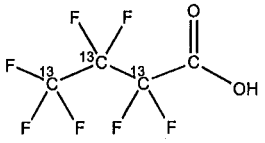
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

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CALA Testing Accreditation No. A1226

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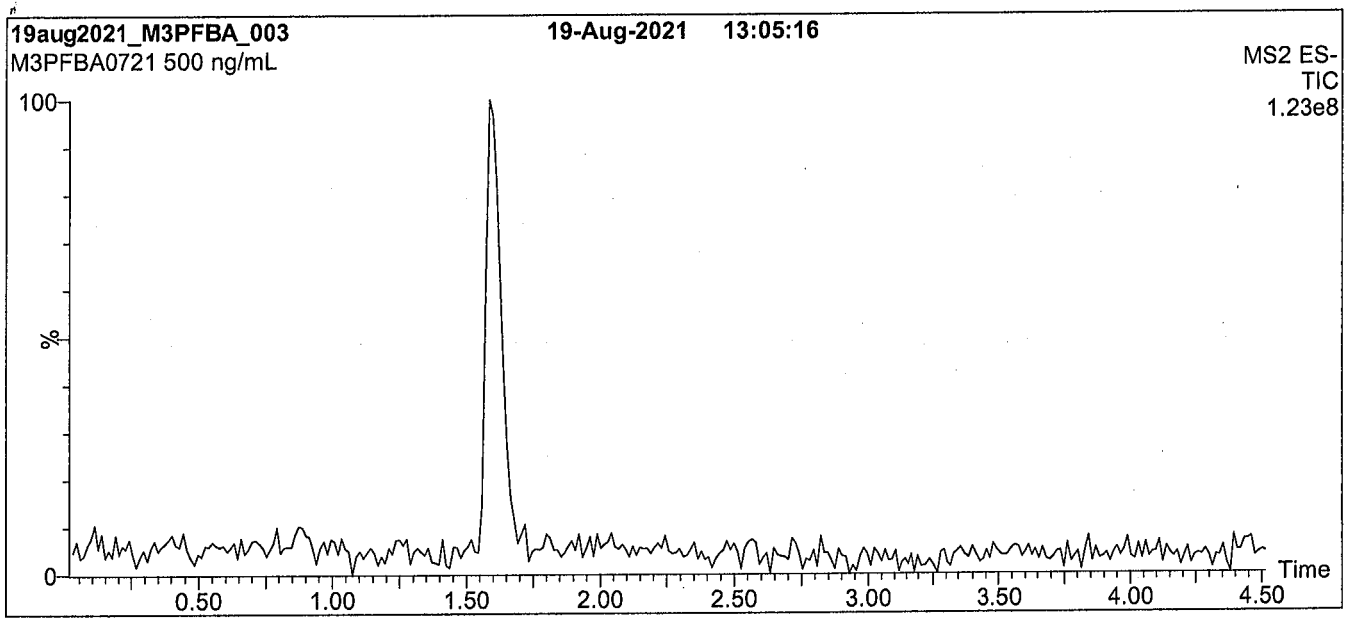
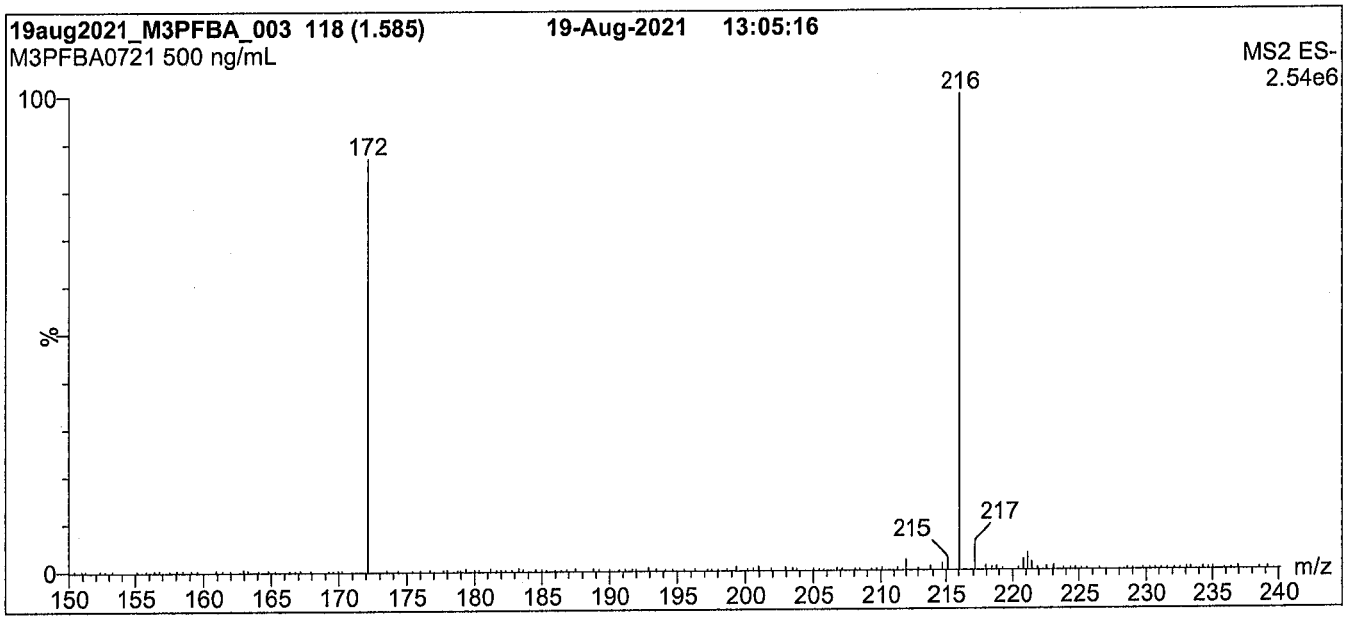
Figure 1: **M3PFBA; LC/MS Data (Full Scan and Mass Spectrum)**





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

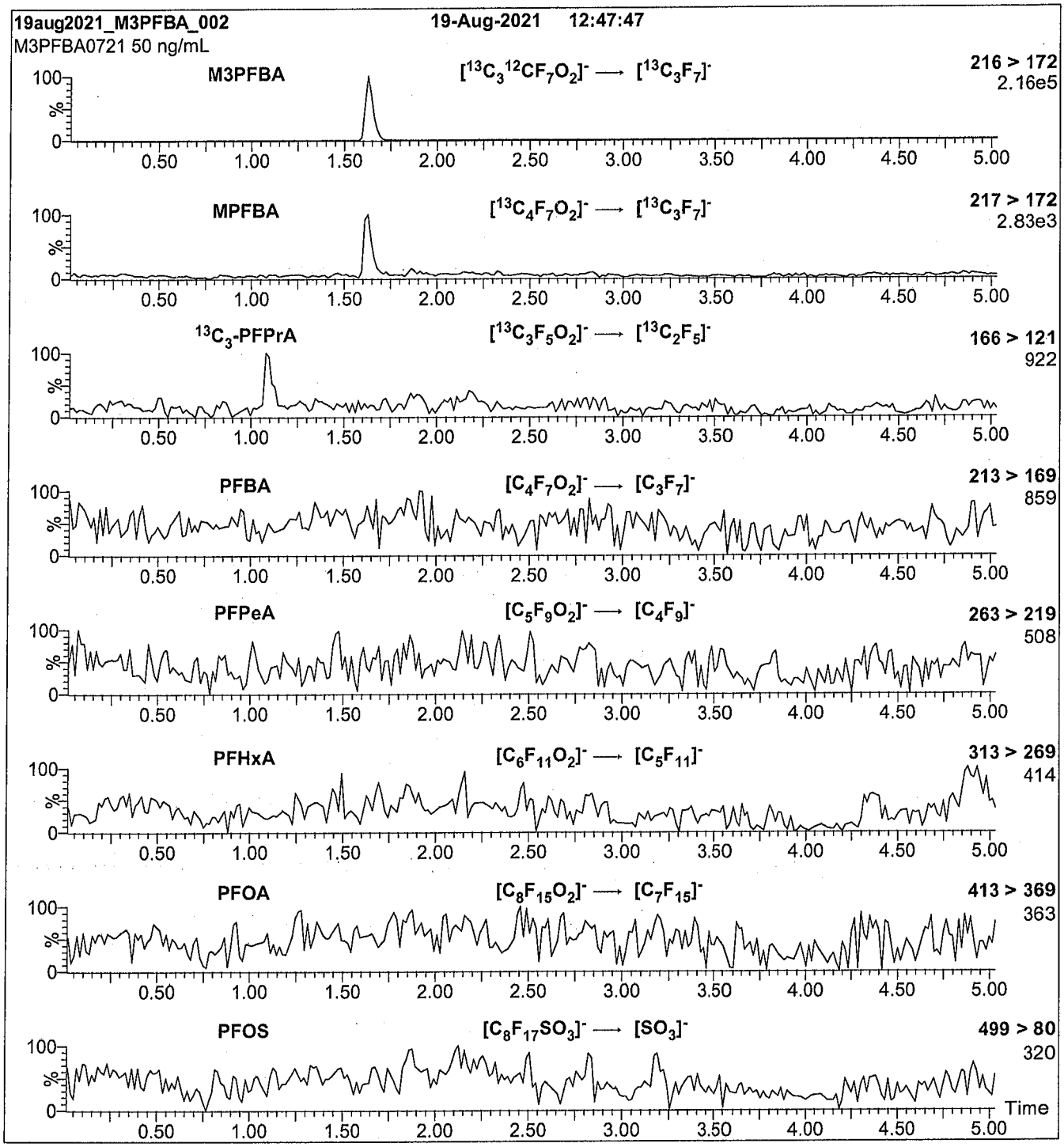
Flow: 300 µL/min

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

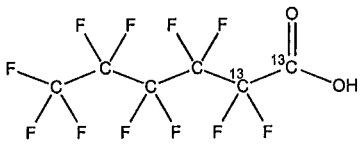
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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.

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Certified By: _____ **Date:** 10/22/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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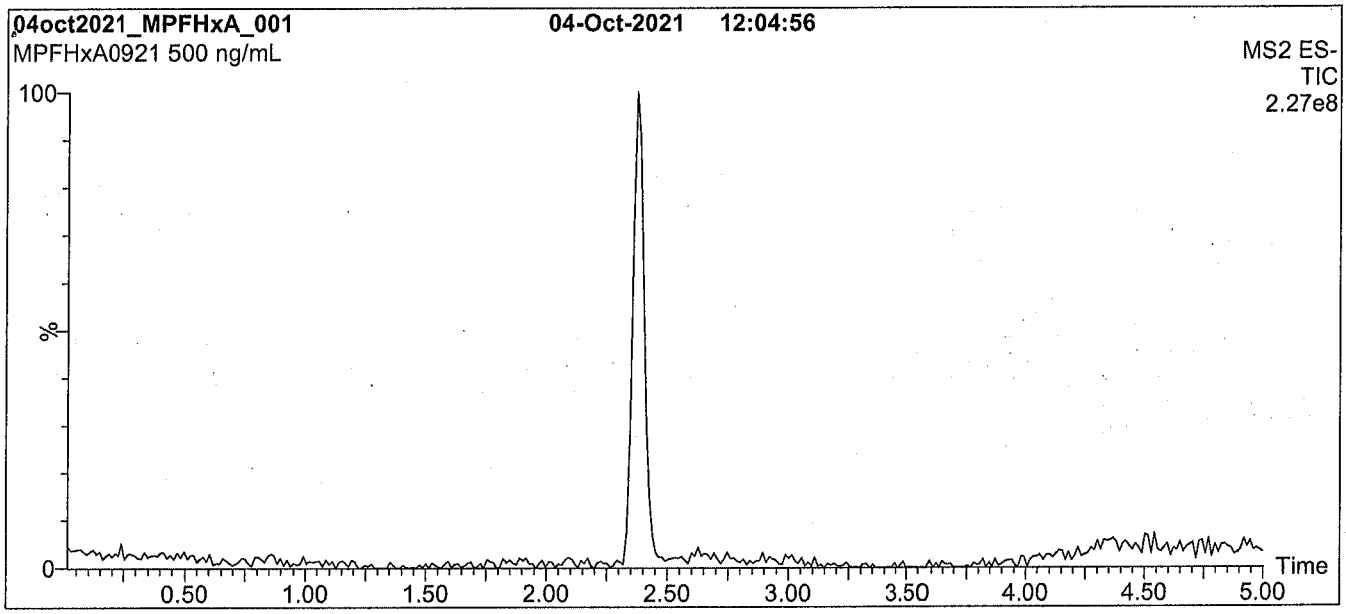
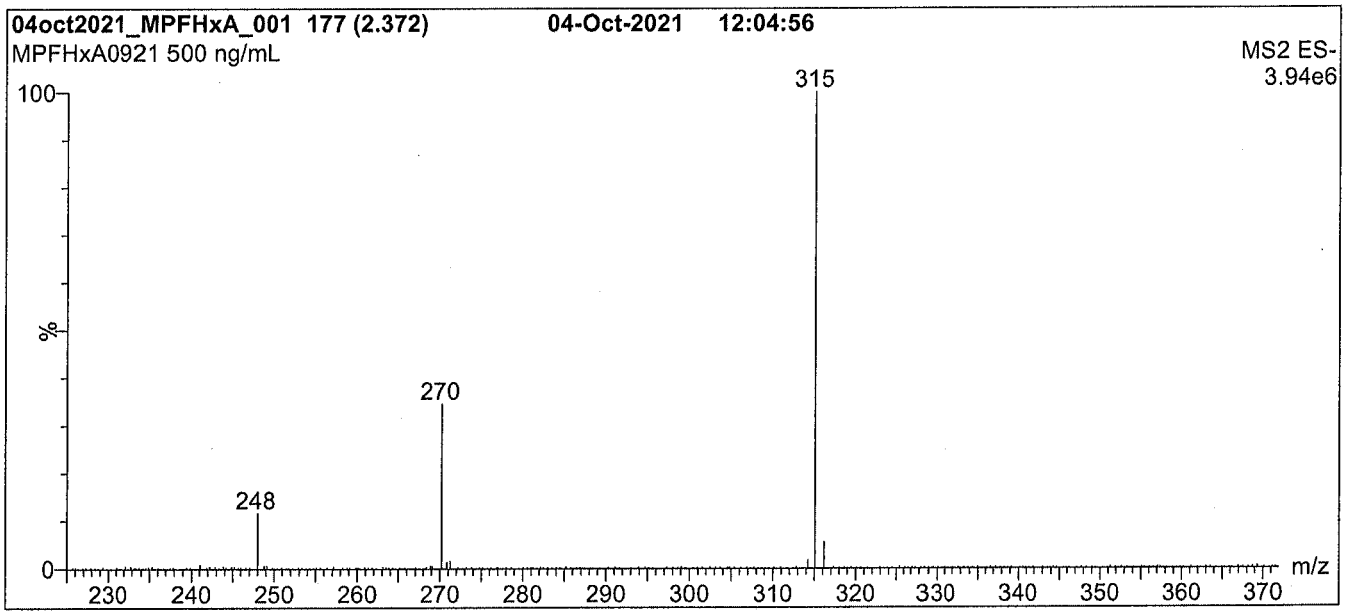
Figure 1: **MPFHxA; LC/MS Data (Full Scan and Mass Spectrum)**





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

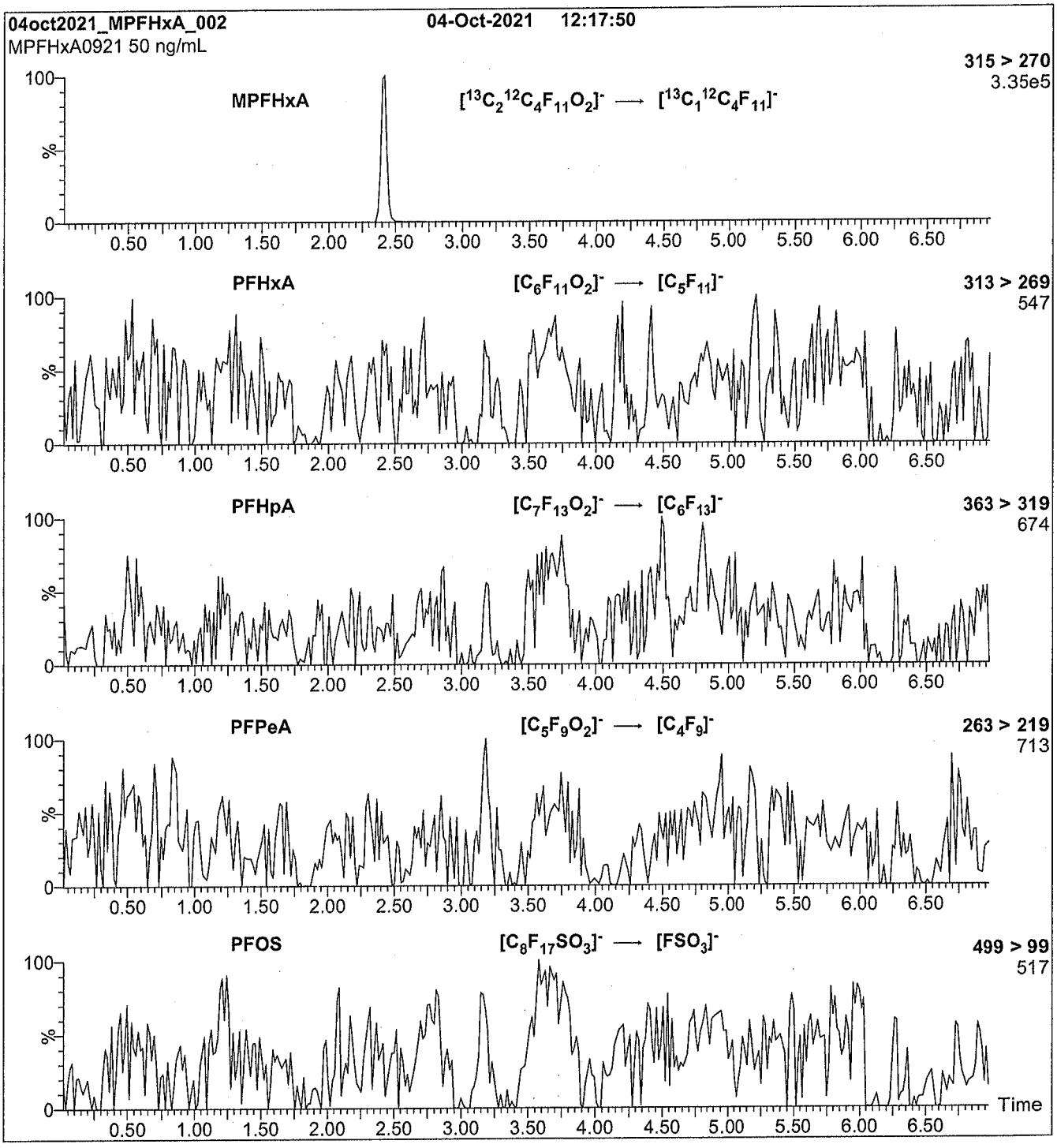
Flow: 300 µL/min

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

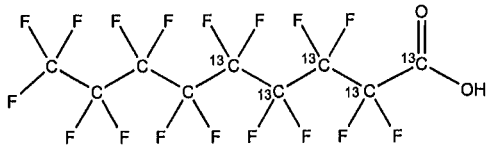
Description:	PFAS - IIS MPFHxA 50ug/mL	Expires:	10/04/2026
Standard Type:	Analyte Spike	Prepared:	10/04/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

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:

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UNCERTAINTY:

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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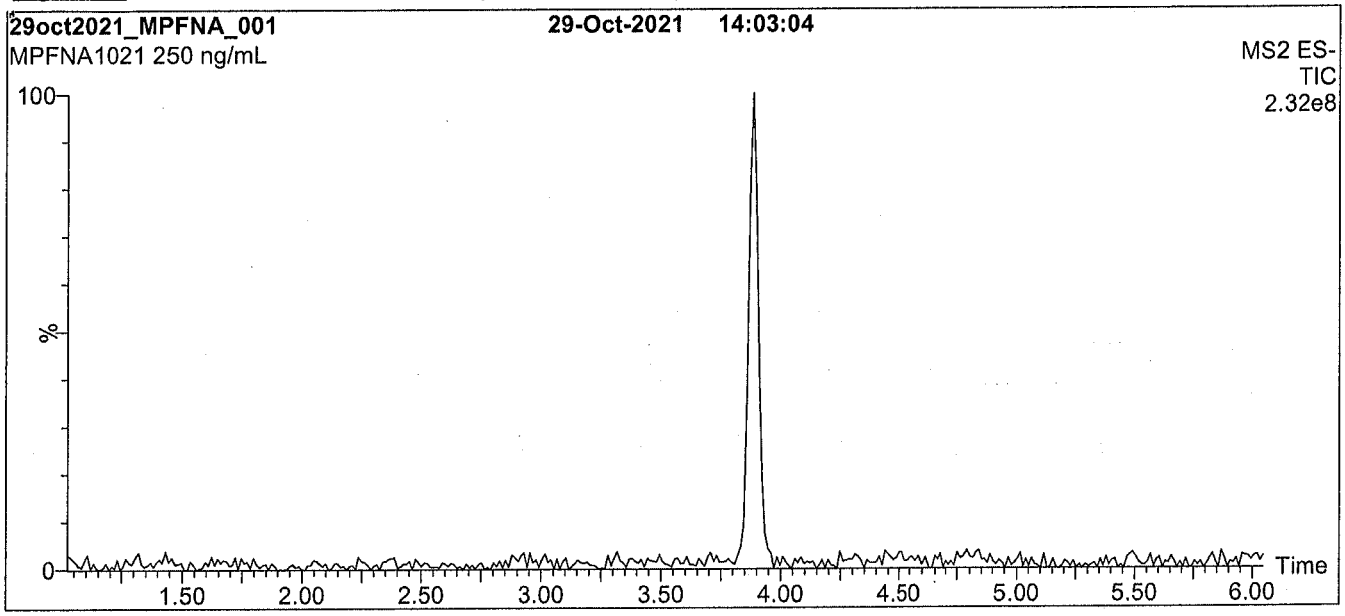
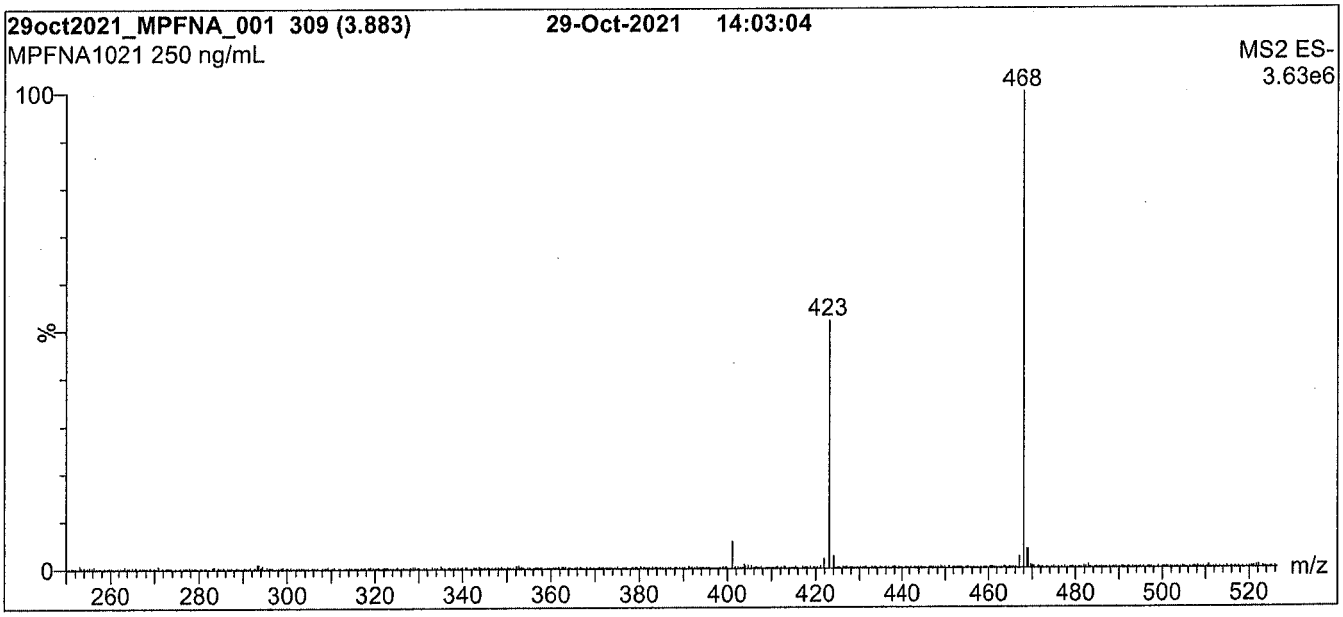
Figure 1: **MPFNA; LC/MS Data (Full Scan and Mass Spectrum)**





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

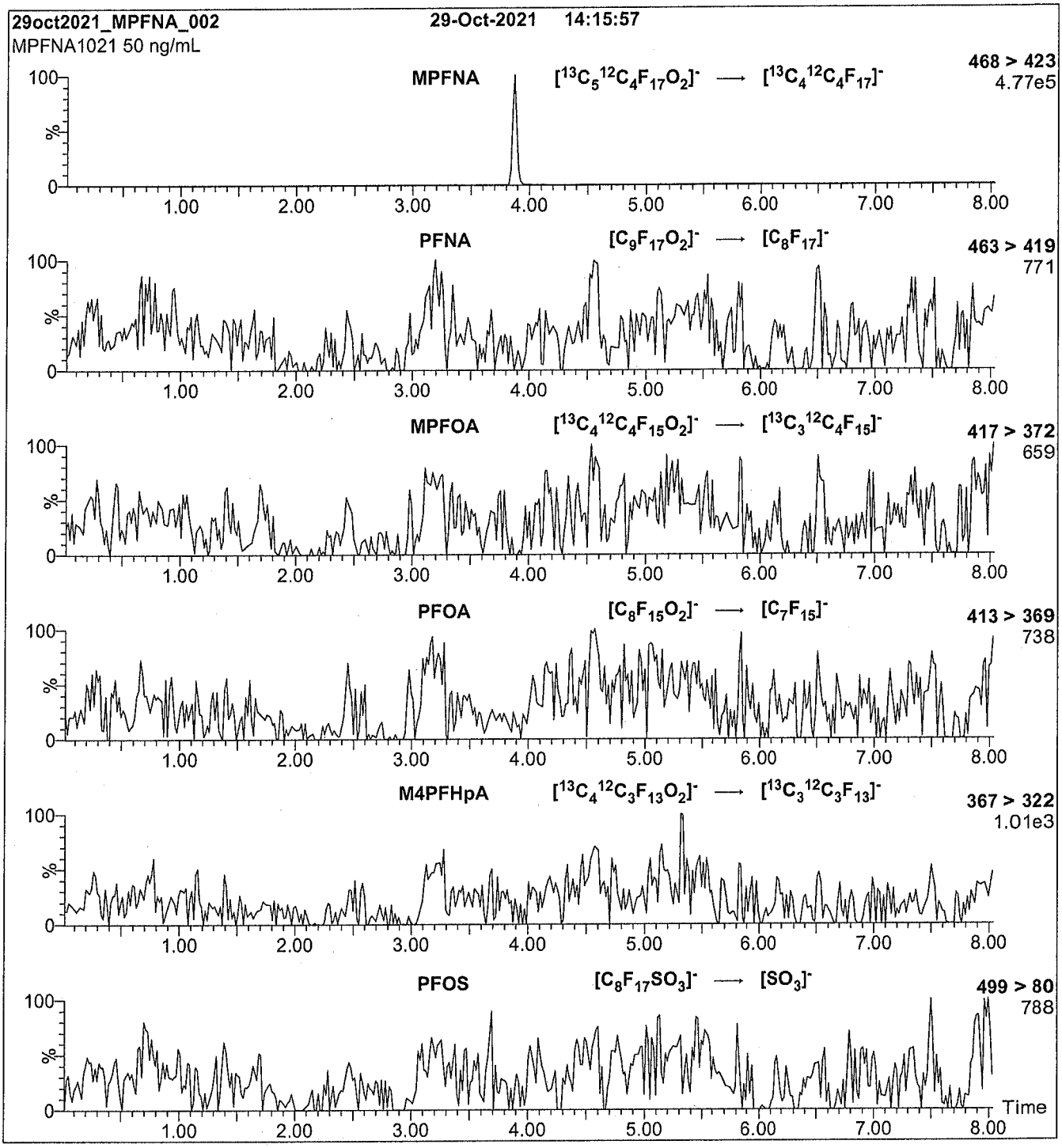
Flow: 300 µL/min

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

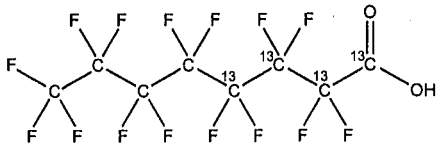
Description:	PFAS - IIS MPFNA 50ug/mL	Expires:	10/29/2026
Standard Type:	Analyte Spike	Prepared:	10/29/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

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
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CALA Testing Accreditation No. A1226

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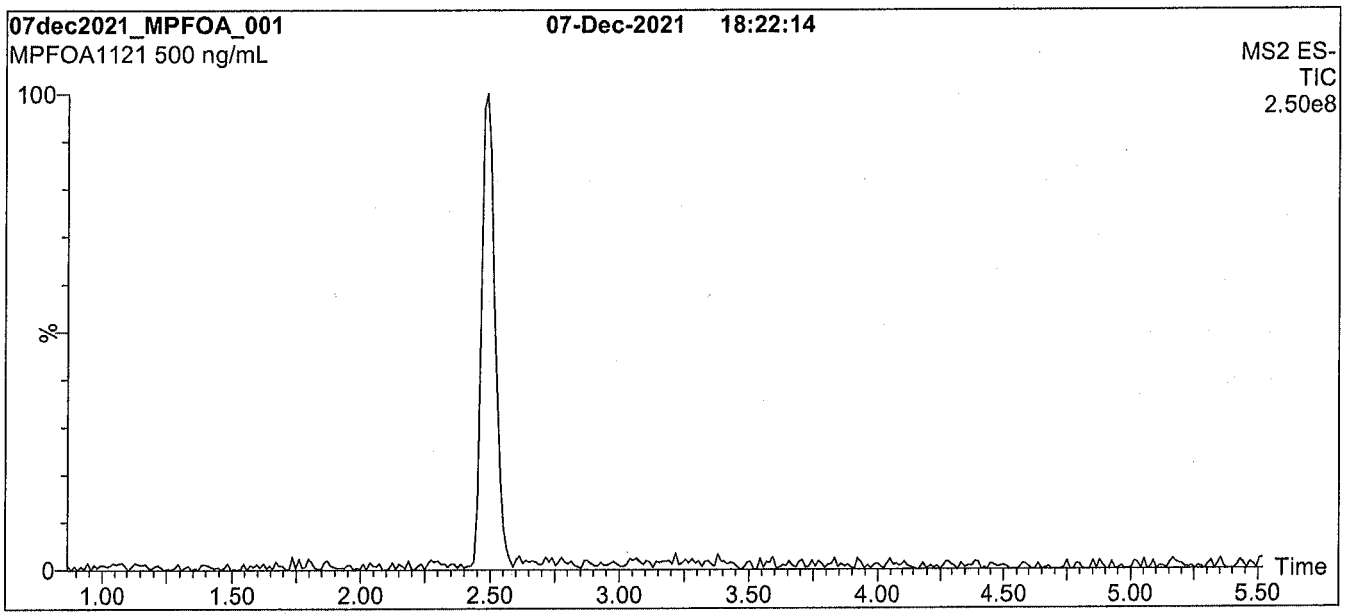
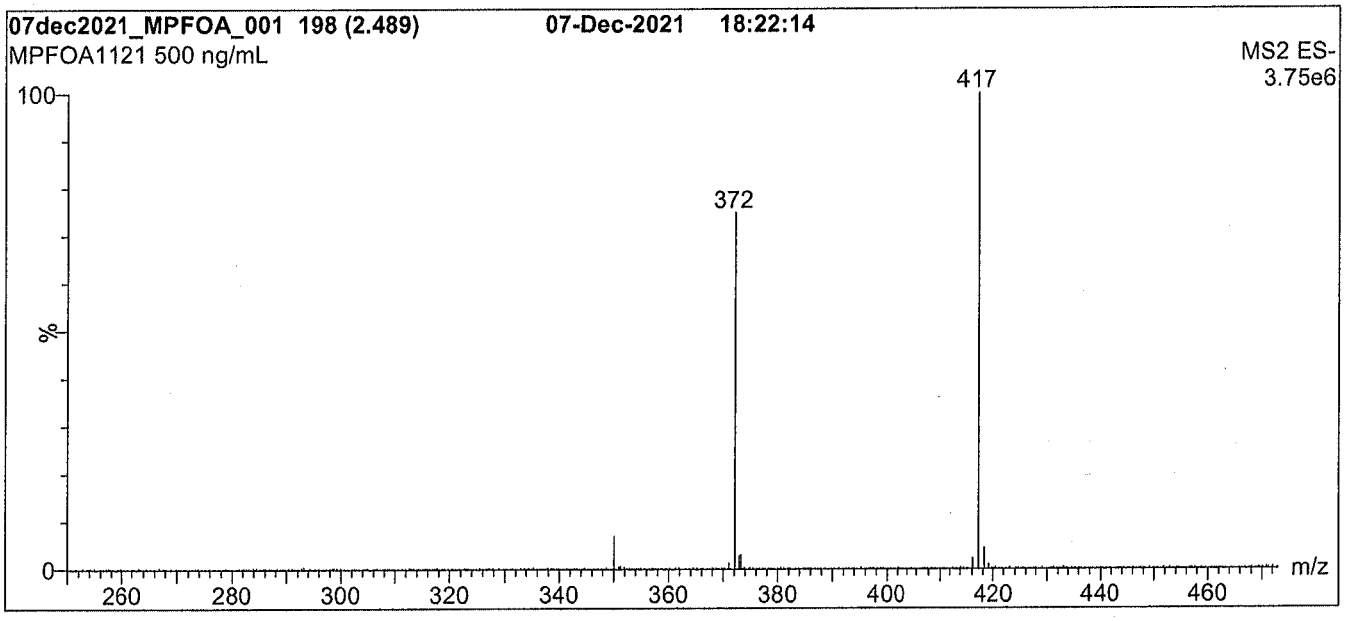




Conditions for Figure 1:

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

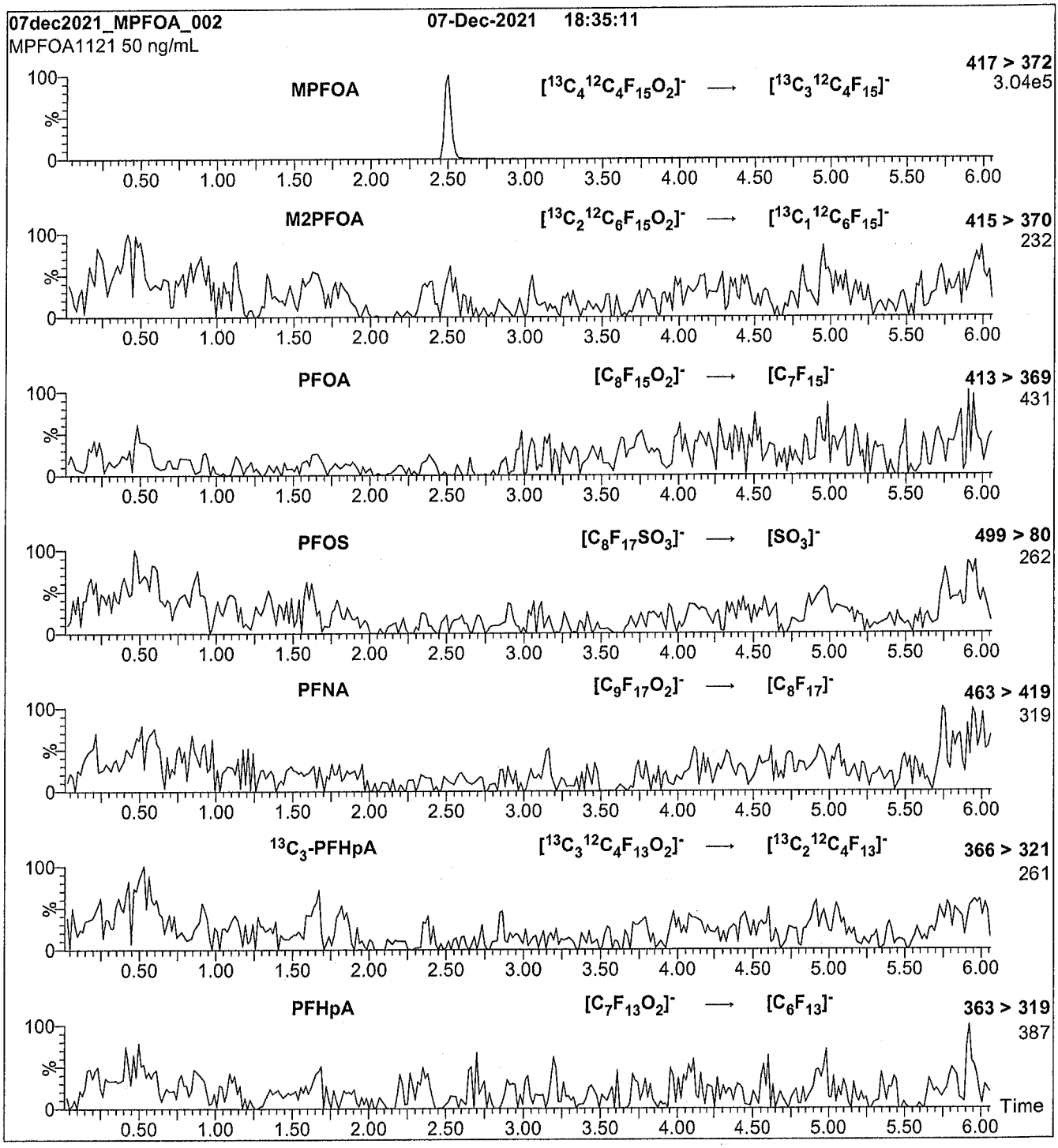
Flow: 300 µL/min

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

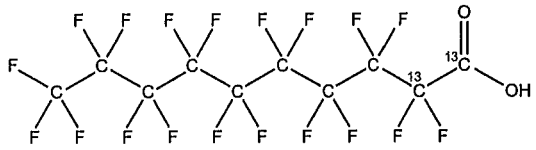
Description:	PFAS - IIS MPFOA 50ug/mL	Expires:	12/07/2026
Standard Type:	Analyte Spike	Prepared:	12/07/2021
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	01/20/2022 15:48 by HGH

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)
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ADDITIONAL INFORMATION:

- See page 2 for further details.
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Certified By: _____ **Date:** 12/13/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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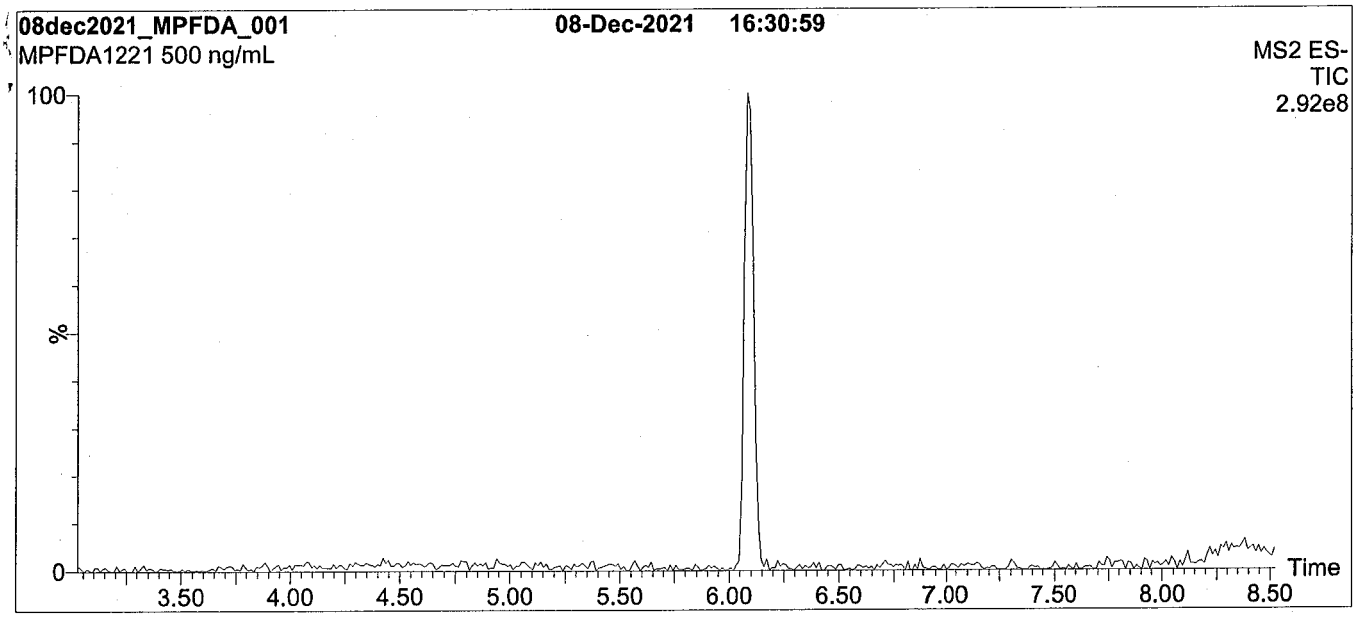
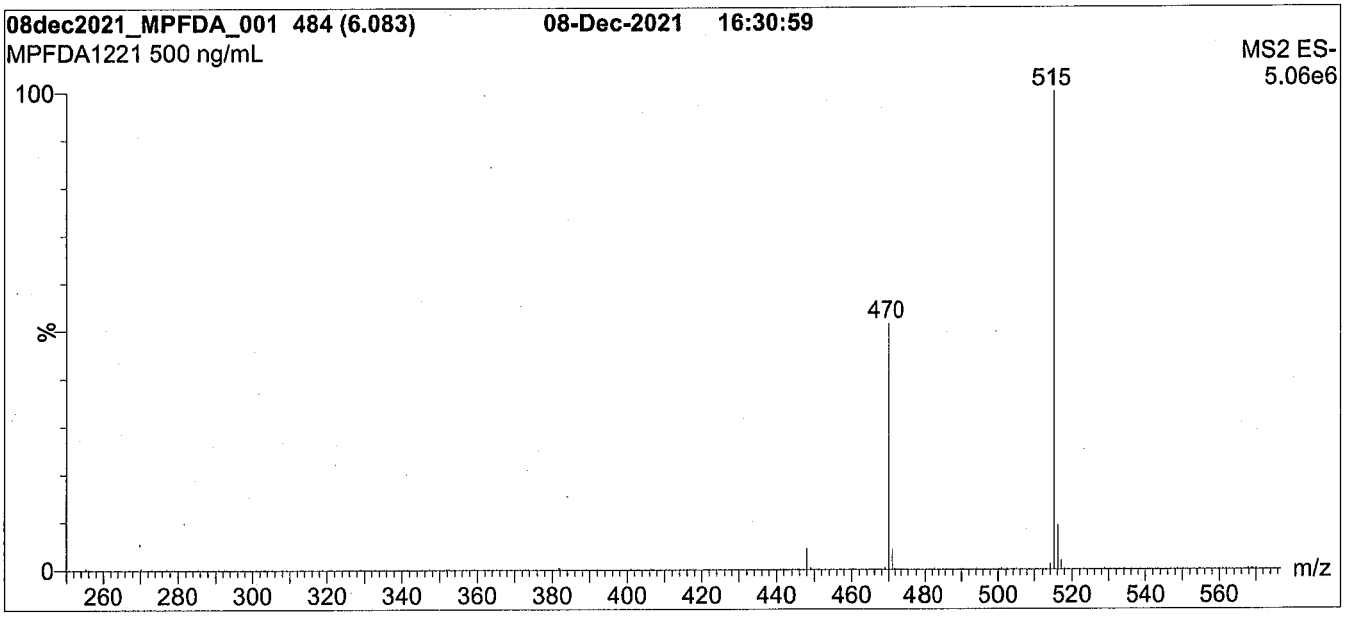
Figure 1: **MPFDA; LC/MS Data (Full Scan and Mass Spectrum)**





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

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(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

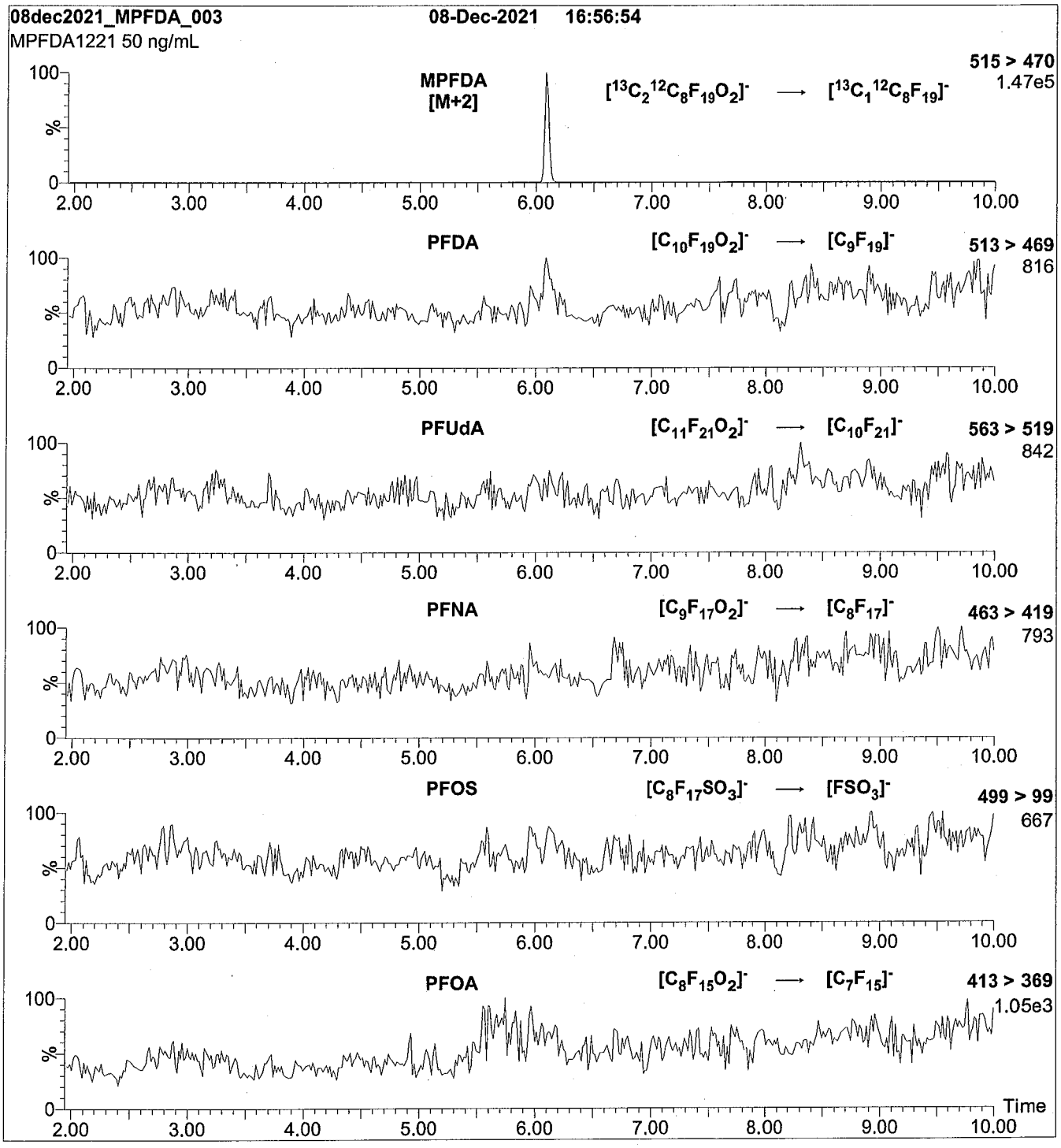
Flow: 300 µL/min

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

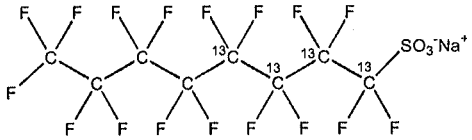
WELLINGTON LABORATORIES

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:

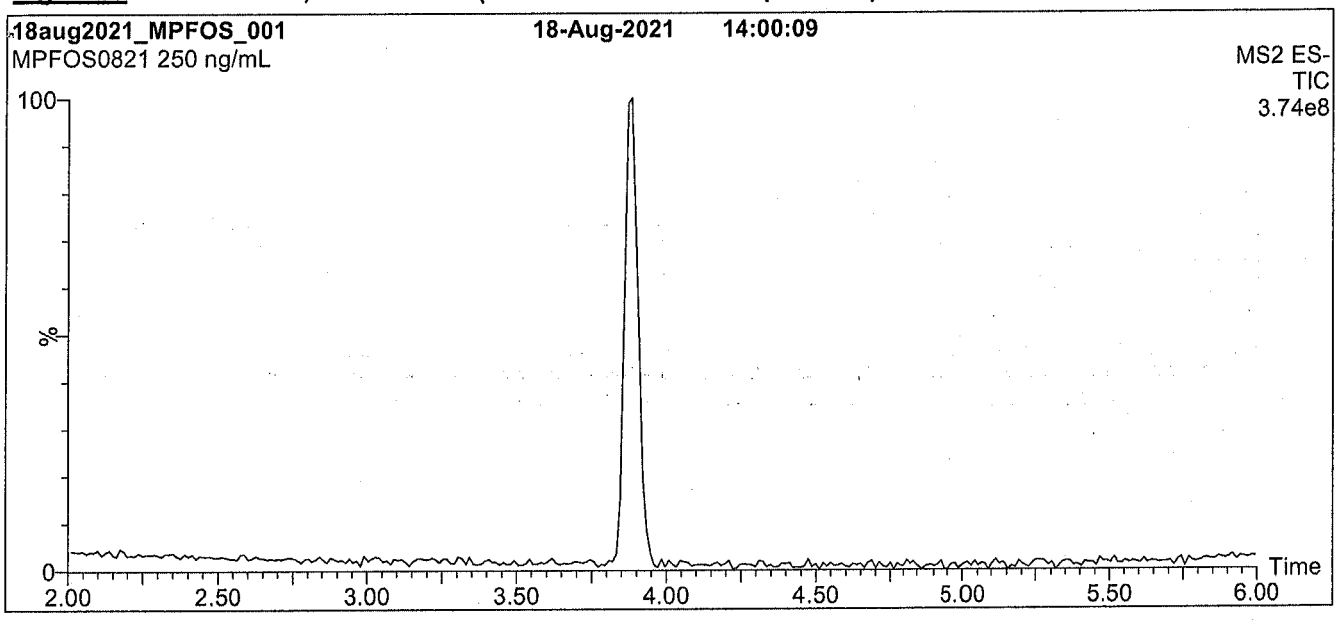
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

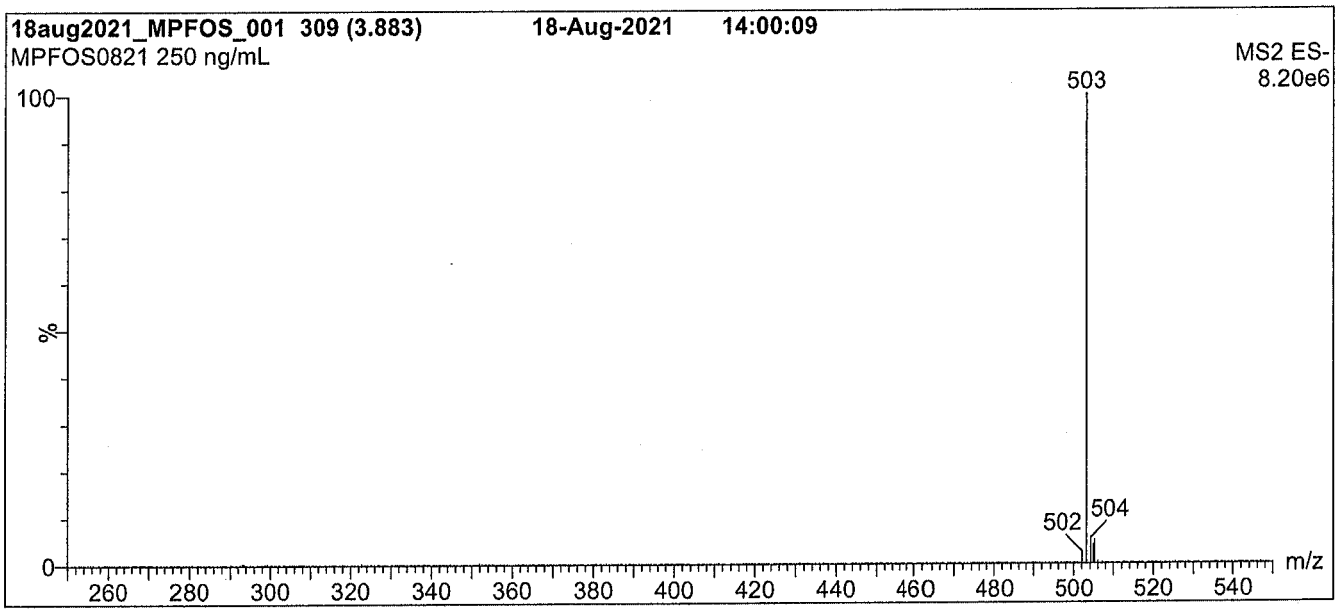
CALA Testing Accreditation No. A1226

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

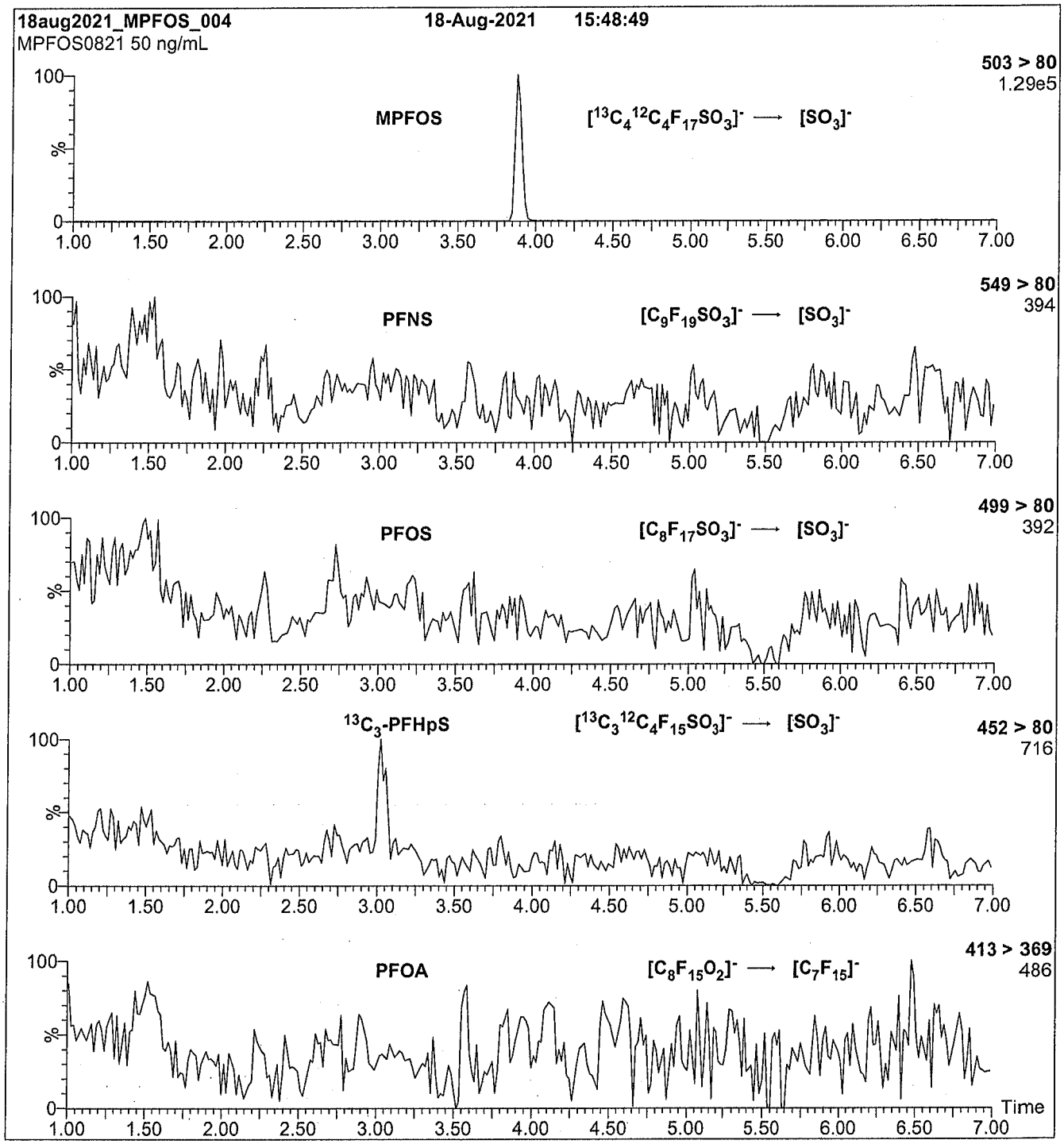
Flow: 300 µL/min

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

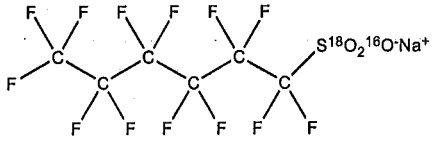
22A0121

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

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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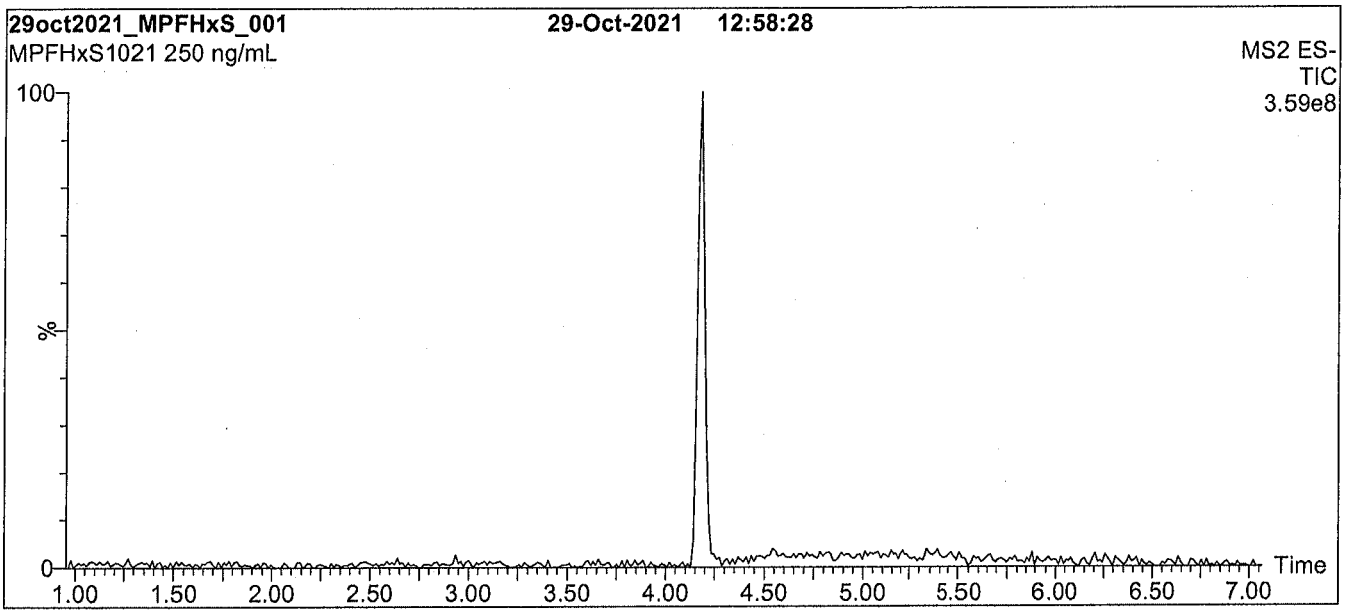

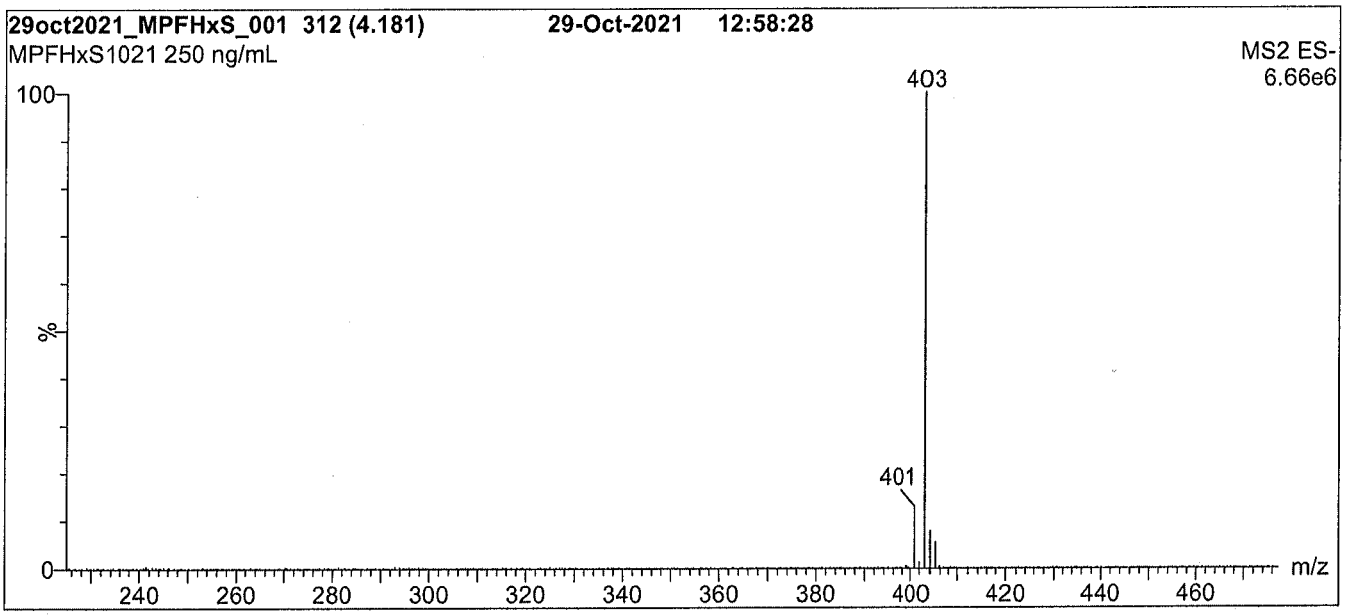

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Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

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

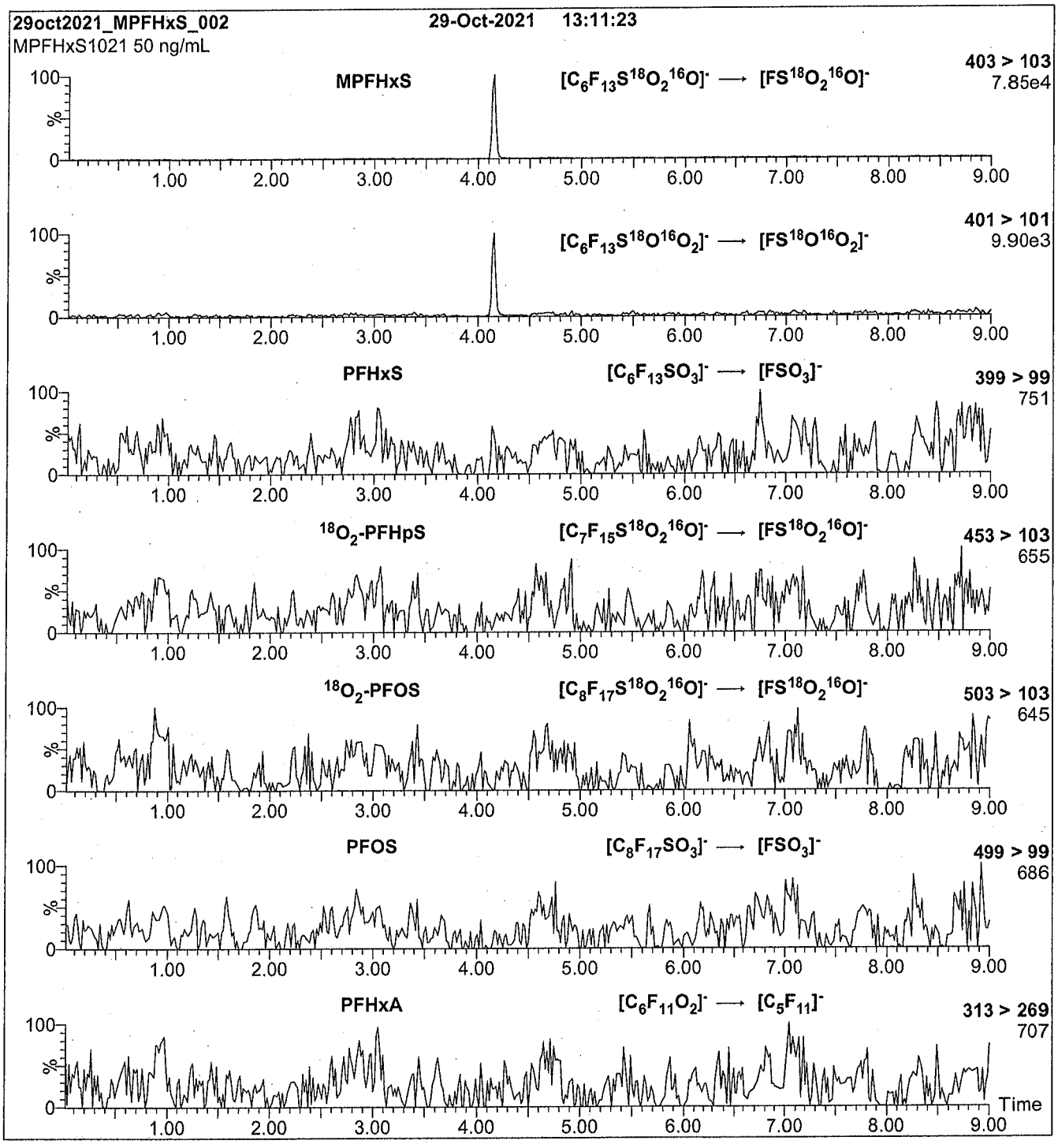
Flow: 300 µL/min

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:

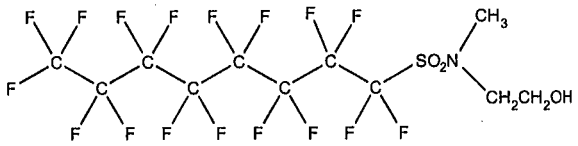
Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22A0116	PFAS - IIS M3PFBA 50ug/mL	08/19/2021	Wellington Laboratories	M3PFBA0721	08/19/2026	01/20/2022 15:48	by HGH	1.2
22A0117	PFAS - IIS MPFHxA 50ug/mL	10/04/2021	Wellington Laboratories	MPFHxA0921	10/04/2026	01/20/2022 15:48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

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UNCERTAINTY:

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

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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.

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

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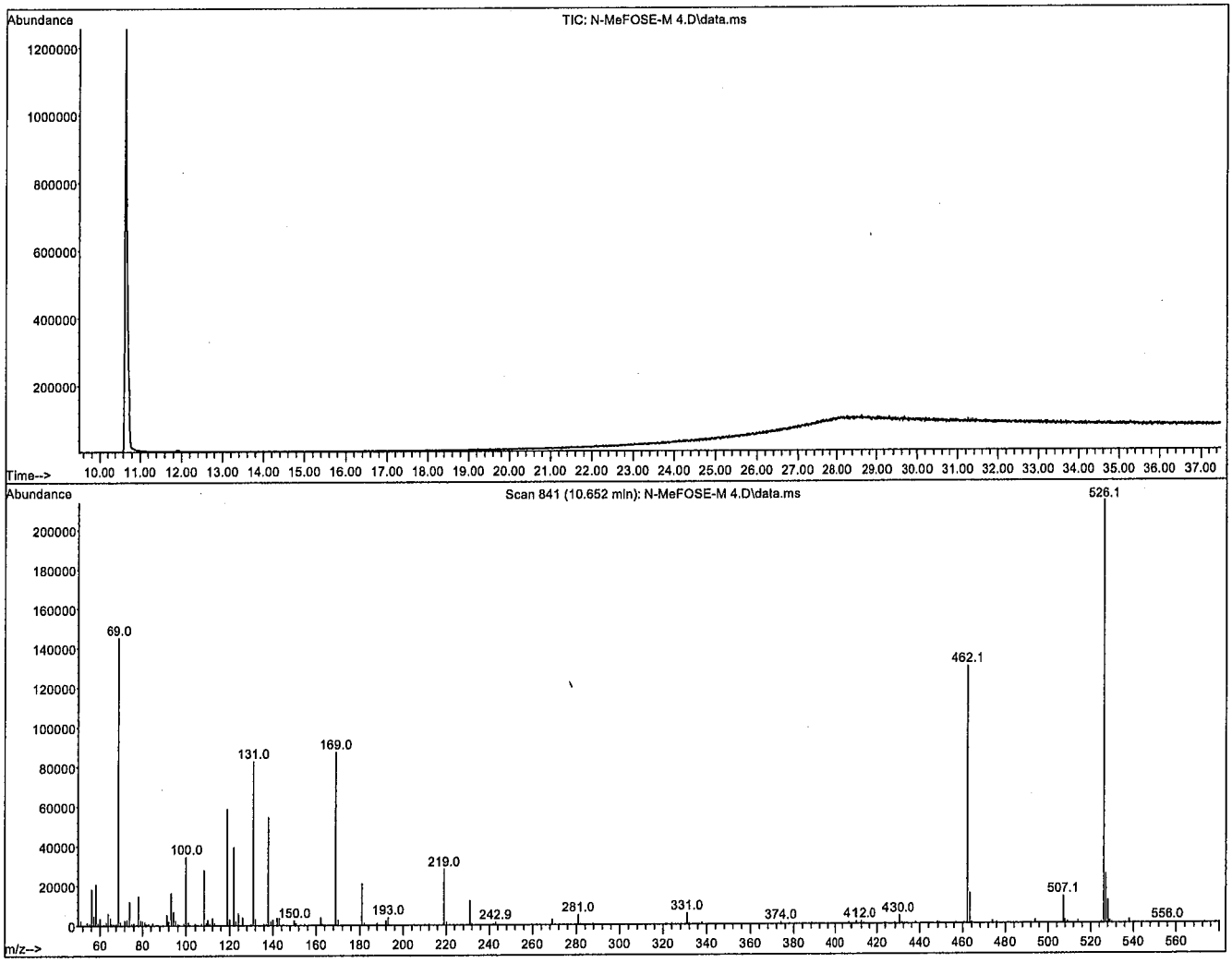
Figure 1: **N-MeFOSE-M; HRGC/LRMS Data (Full Scan and Mass Spectrum)**



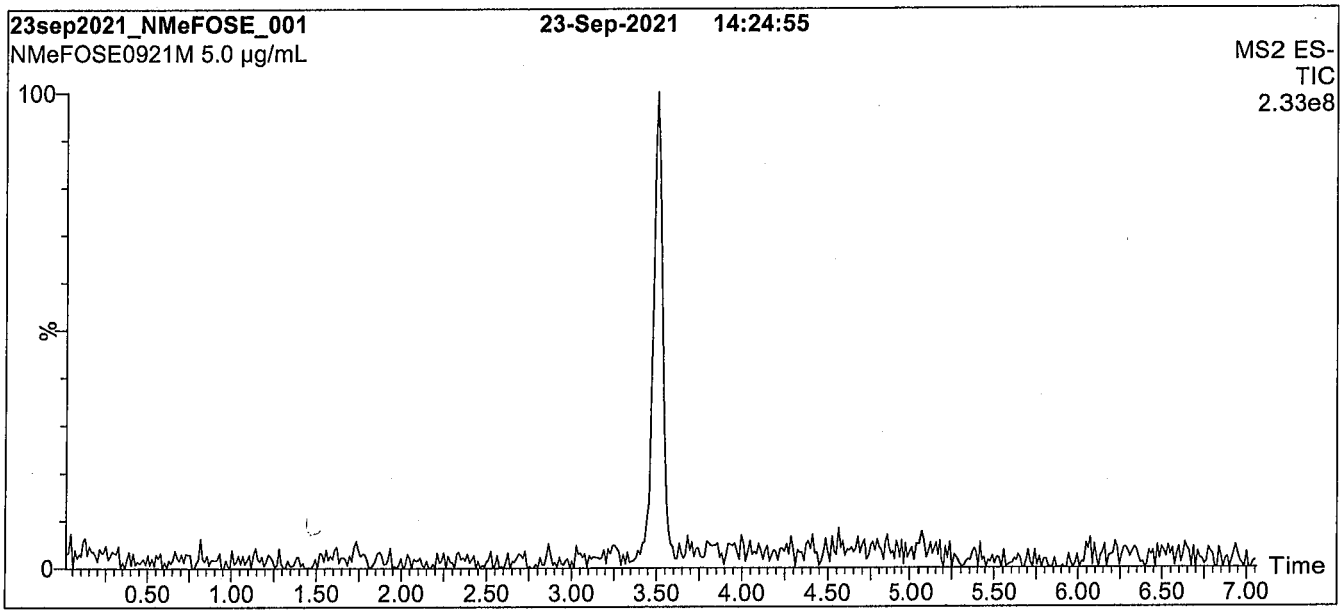
Conditions for Figure 1:

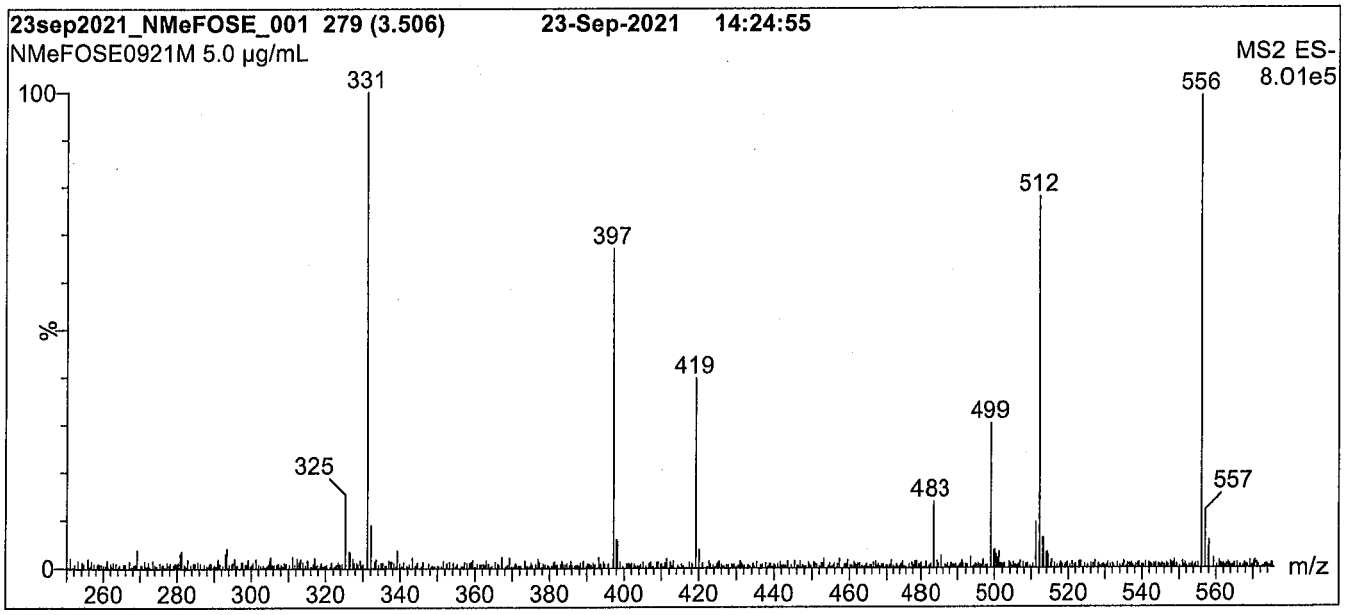
Agilent 7890A HRGC
Agilent 5975C MSD

Chromatographic Conditions:

Column:	30 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W
Flow:	Constant at 1 mL/min
Injector:	250°C (Splitless Injection)
Oven:	100°C (5 min) 10°C/min to 310°C 310°C (10 min)
Ionization:	EI+
Detector:	230°C Full Scan (50-1000 amu)

Figure 2: **N-MeFOSE-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 2:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% H_2O / 70% MeOH
Ramp to 90% organic over 8 min and hold for
1.5 min before returning to initial conditions in 1 min.
Time: 12 min

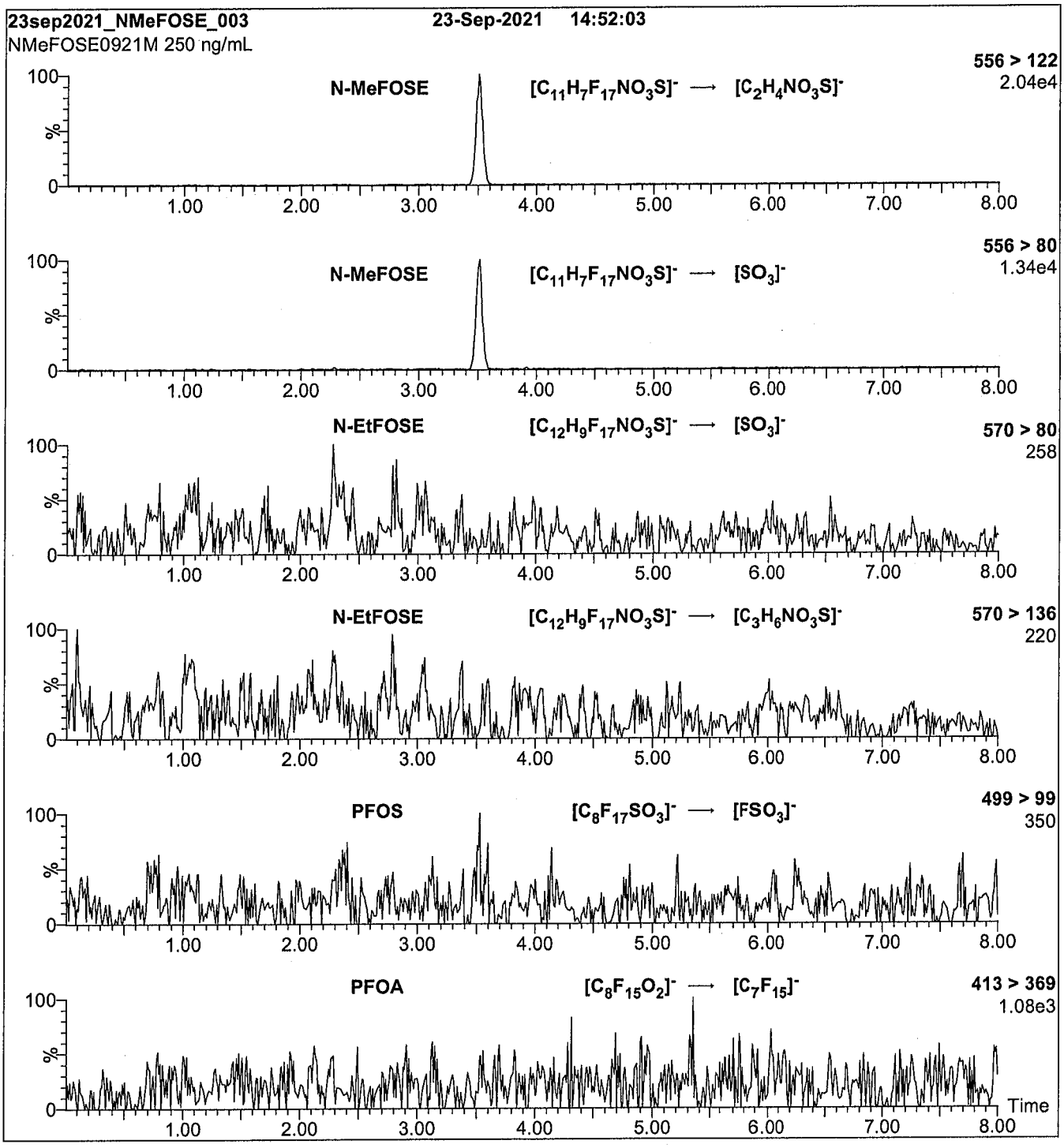
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Desolvation Temperature (°C) = 450
Desolvation Gas Flow (L/hr) = 1000

Figure 3: **N-MeFOSE-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (N-MeFOSE-M)

Mobile phase: Same as Figure 2

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.14e-3
Collision Energy (eV) = 36

Analytical Standard Record

22C0307

Description:	PFAS - SAS N-MeFOSE 50ug/mL	Expires:	09/23/2026
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: NMeFOSE0921M)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 15:59 by DAG

Analyte	Parent	CAS Number	Concentration	Units
NMeFOSE		24448-09-7	50	ug/mL

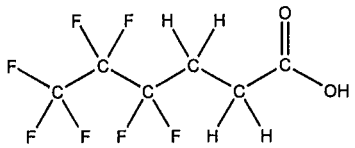
Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	FPrPA	**LOT NUMBER:**	FPrPA0122
COMPOUND:	3-Perfluoropropyl propanoic acid		22C0308
STRUCTURE:		**CAS #:**	356-02-5



MOLECULAR FORMULA:	$C_6H_5F_7O_2$	**MOLECULAR WEIGHT:**	242.09
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	02/03/2022		
EXPIRY DATE: (mm/dd/yyyy)	02/03/2027		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/04/2022 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

INTENDED USE:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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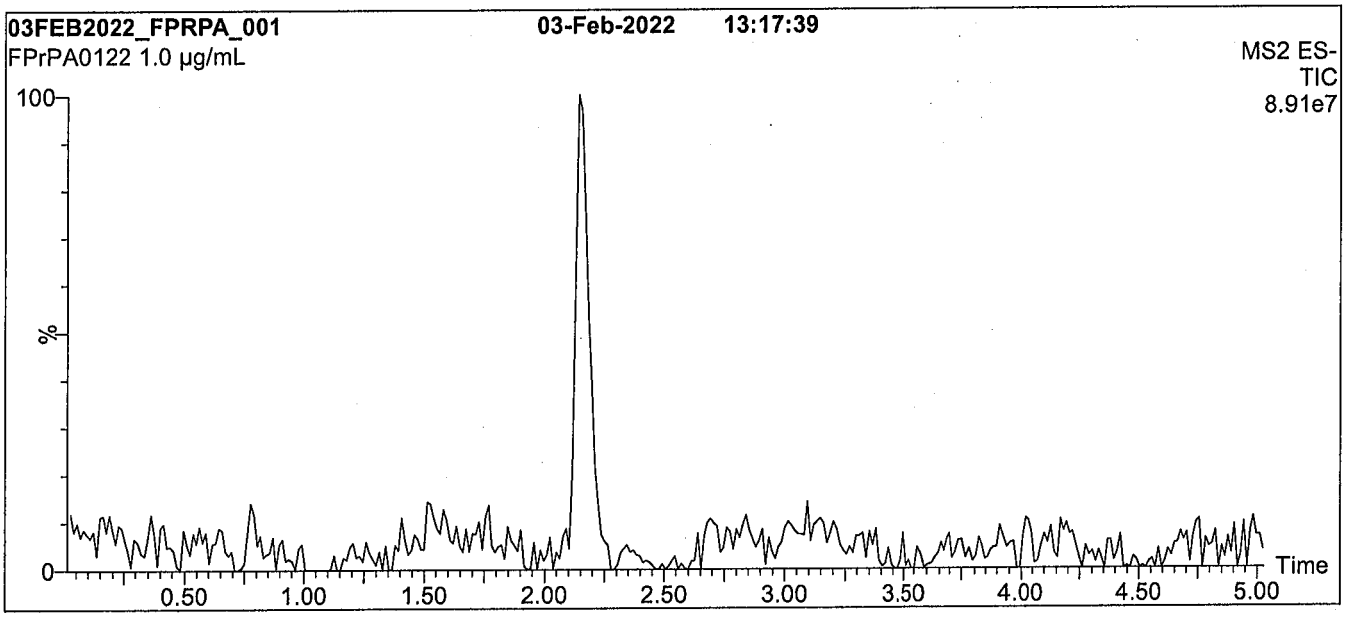
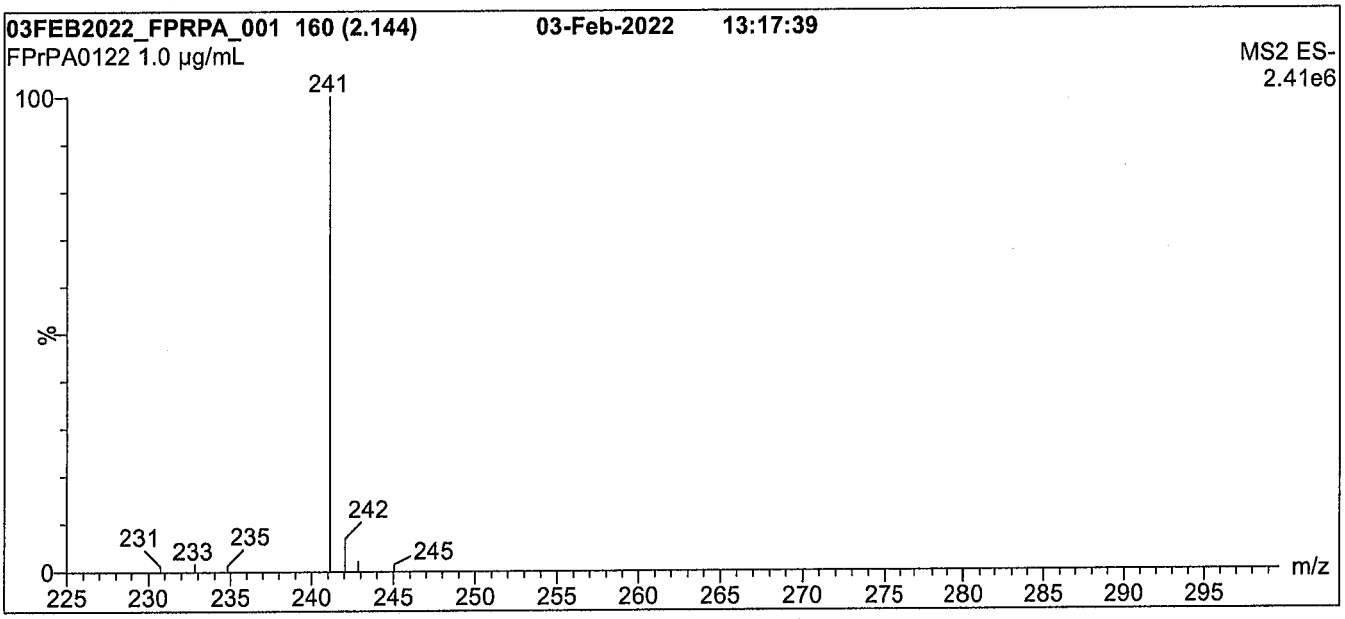
Figure 1: **FPrPA; LC/MS Data (Full Scan and Mass Spectrum)**





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

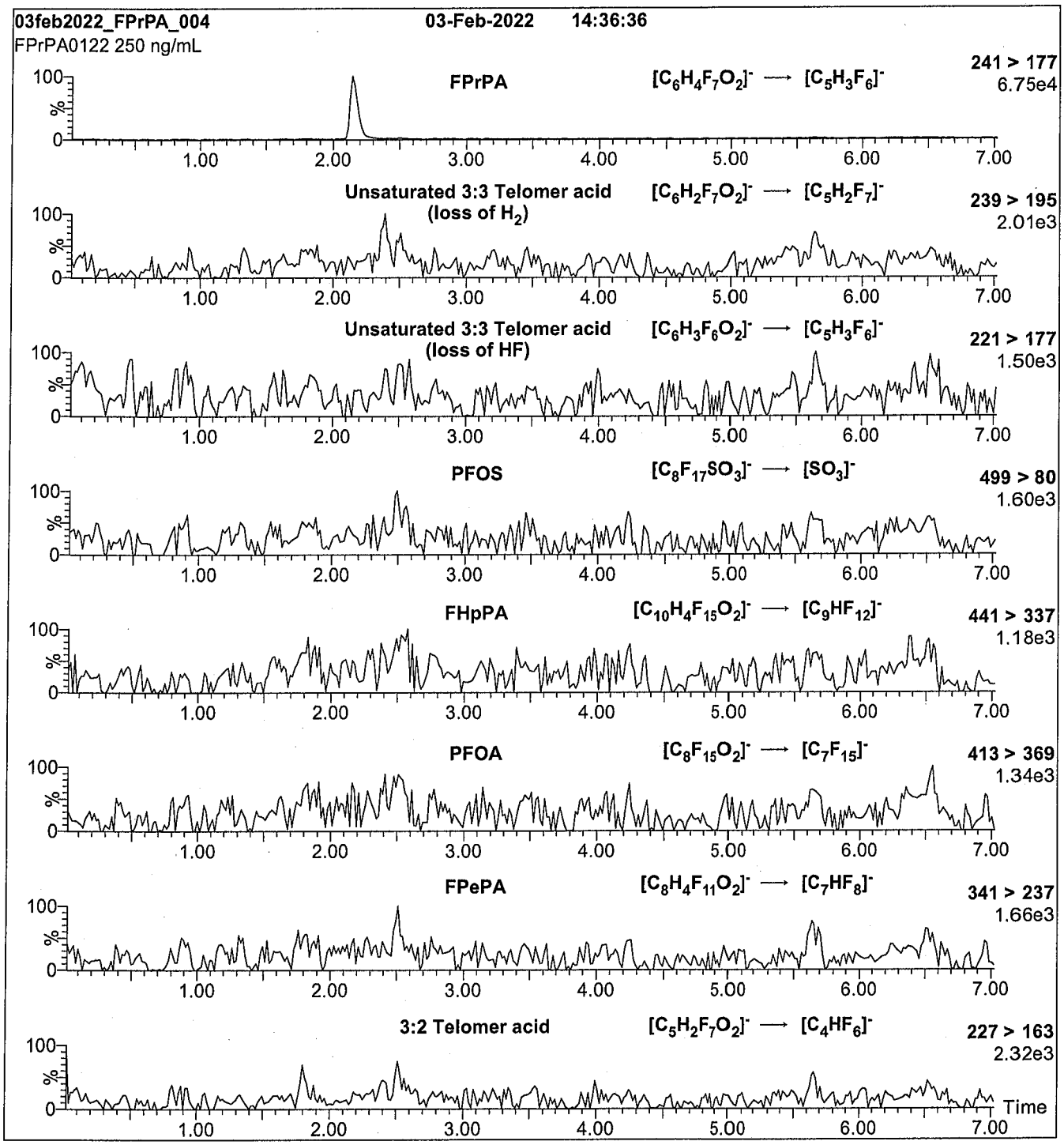
Flow: 300 µL/min

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

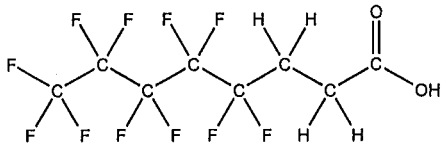
Reviewed By

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

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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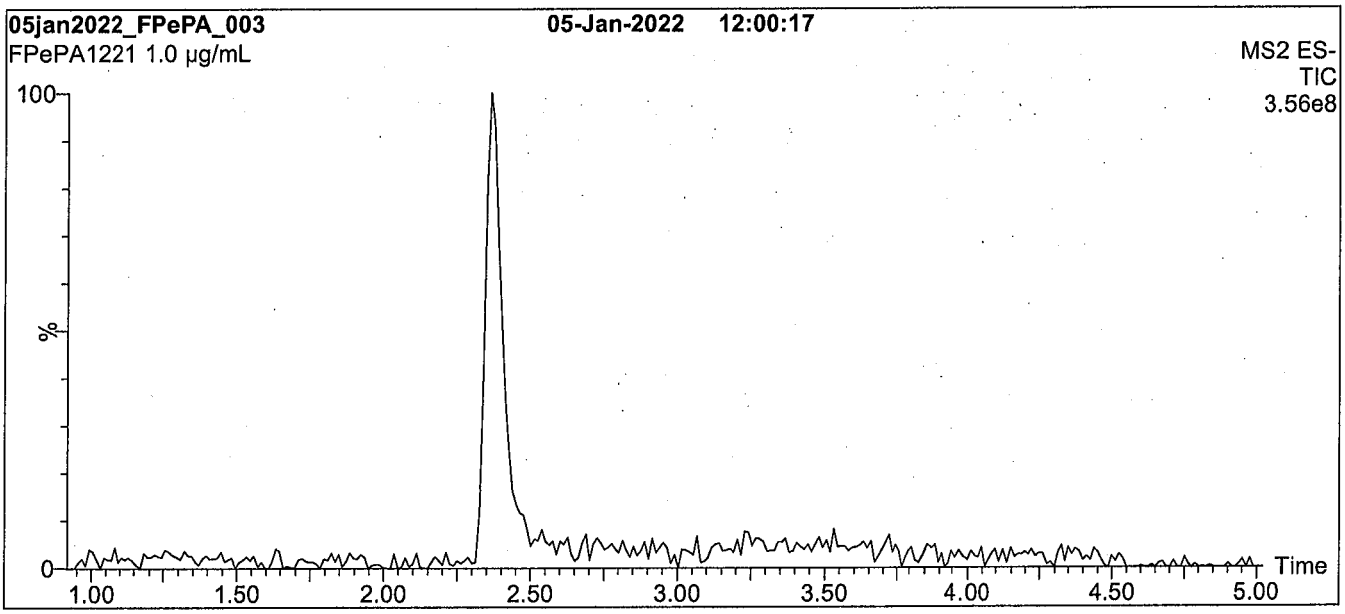
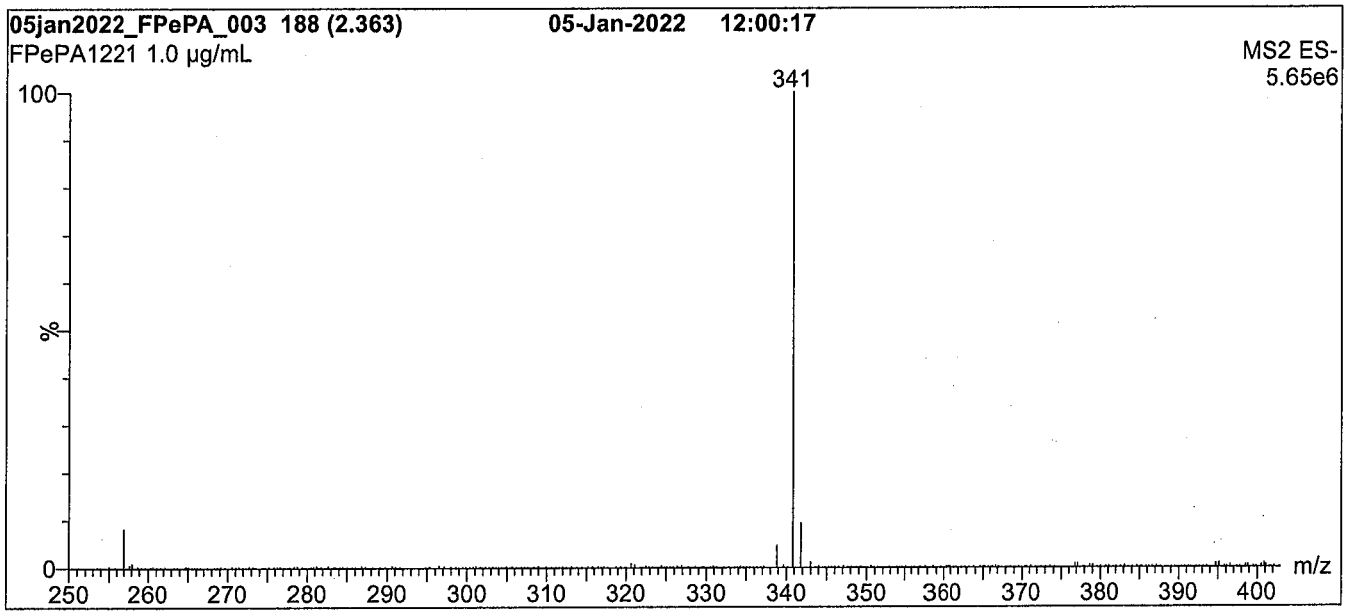
Figure 1: **FPePA; LC/MS Data (Full Scan and Mass Spectrum)**





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

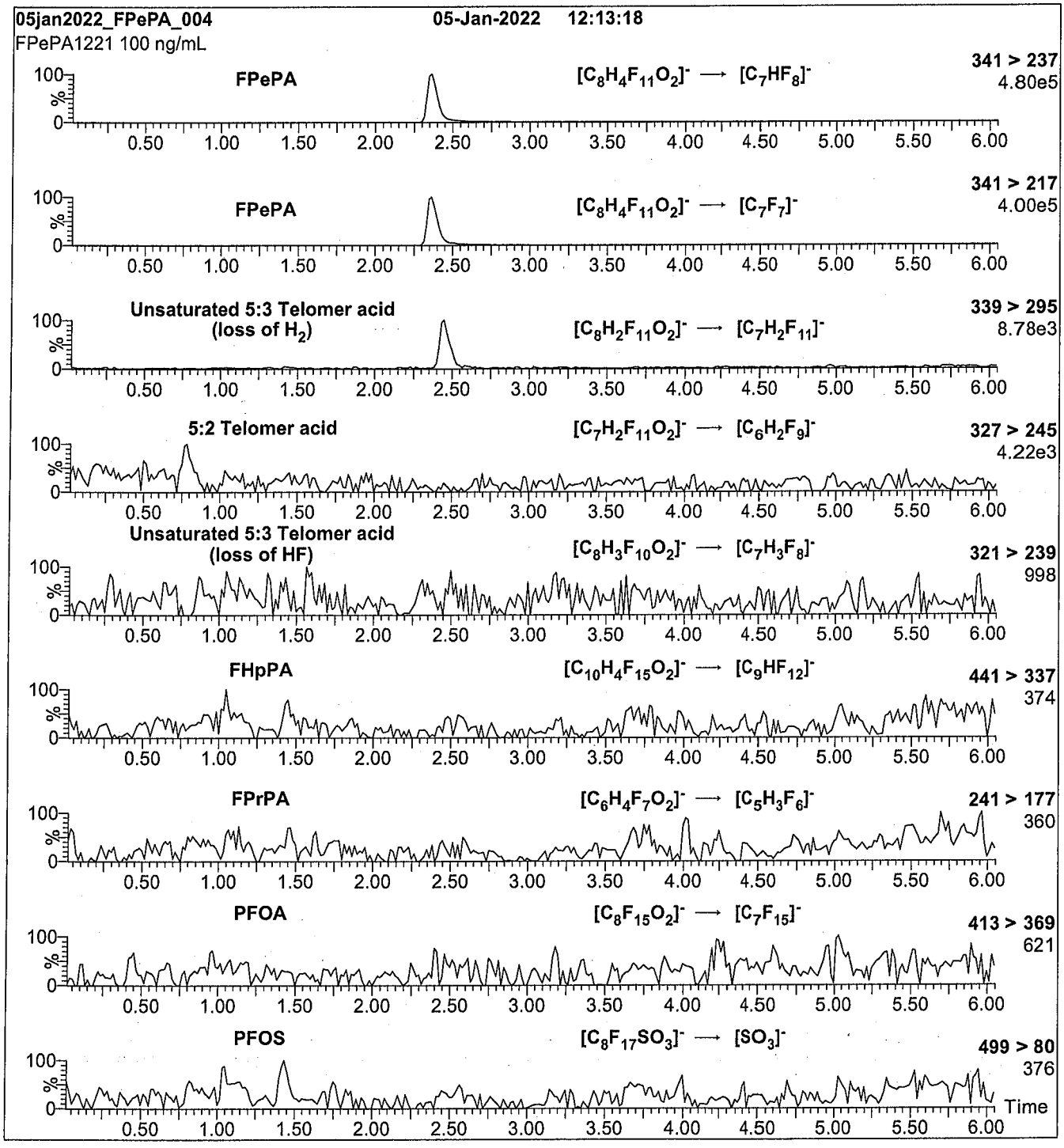
Flow: 300 µL/min

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

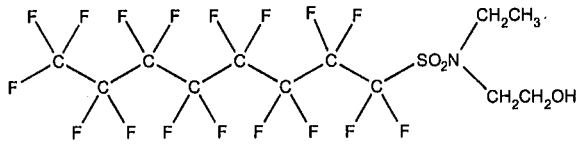
Date

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:

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

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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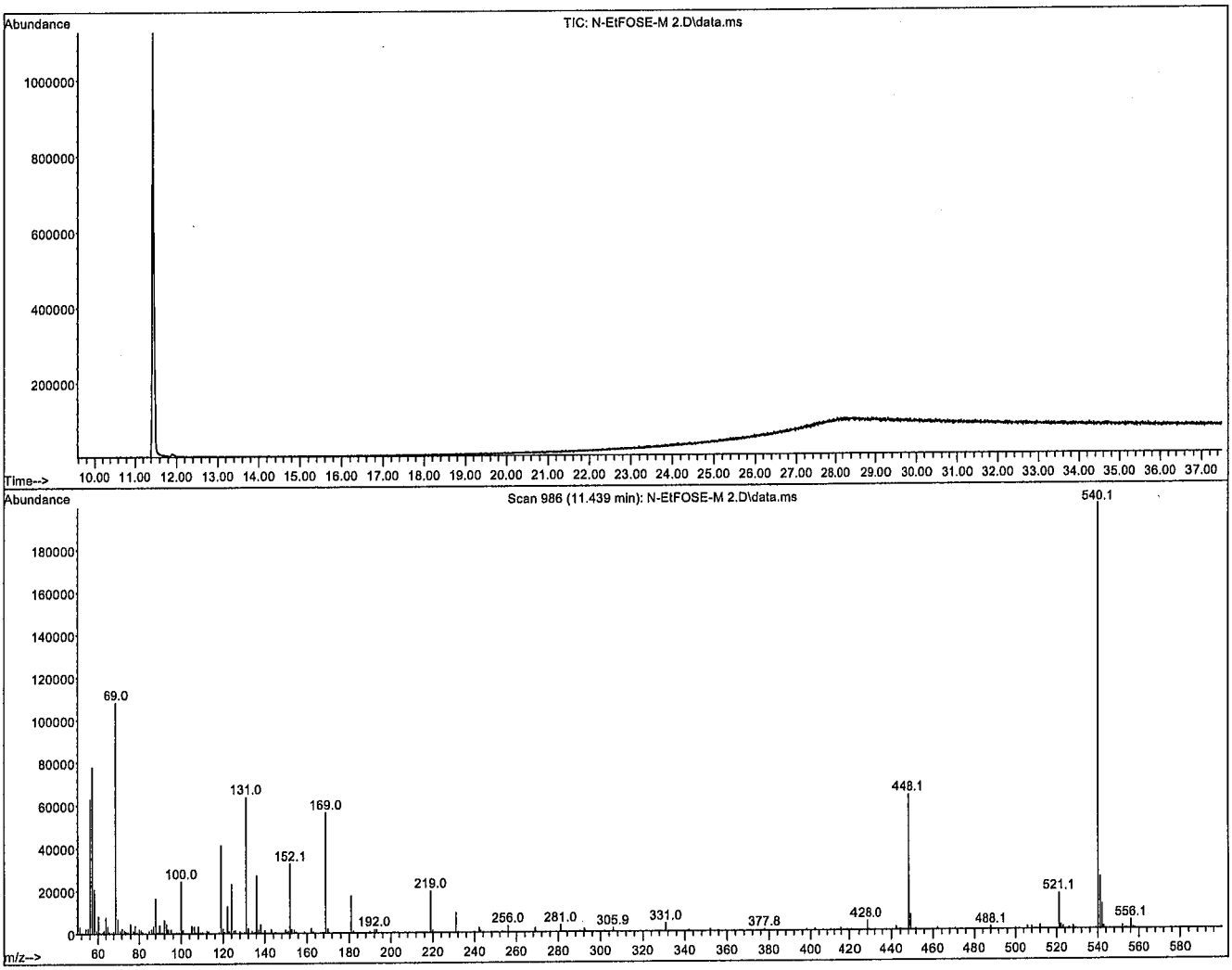
Figure 1: **N-EtFOSE-M; HRGC/LRMS Data (Full Scan and Mass Spectrum)**



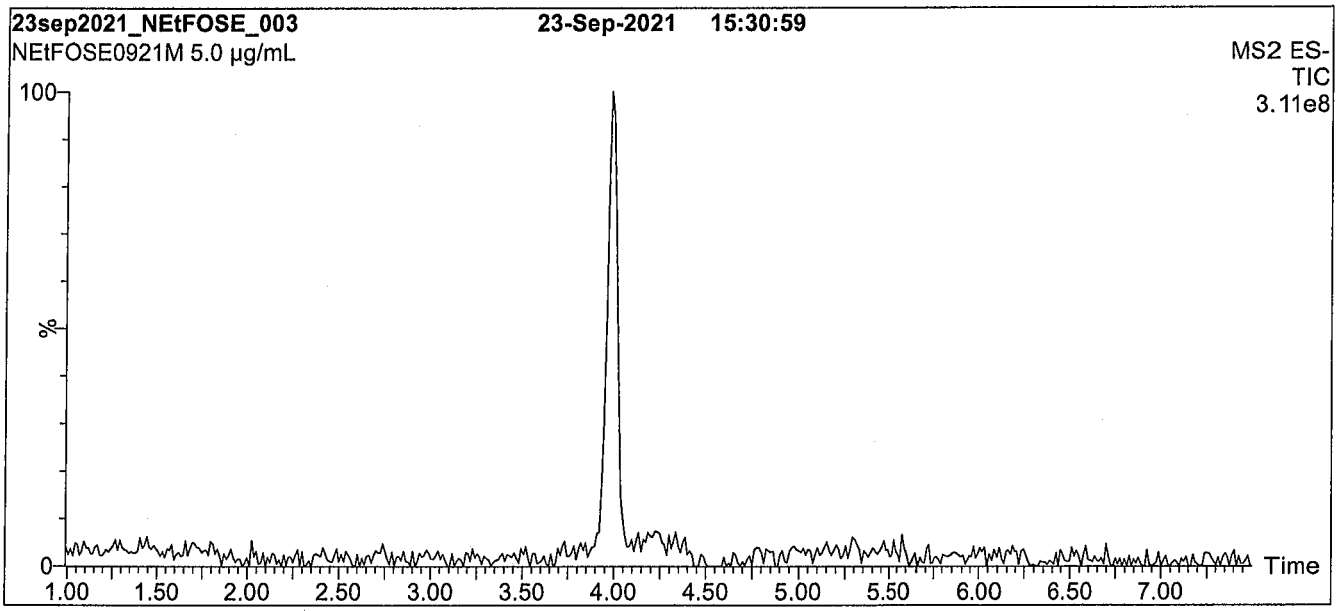
Conditions for Figure 1:

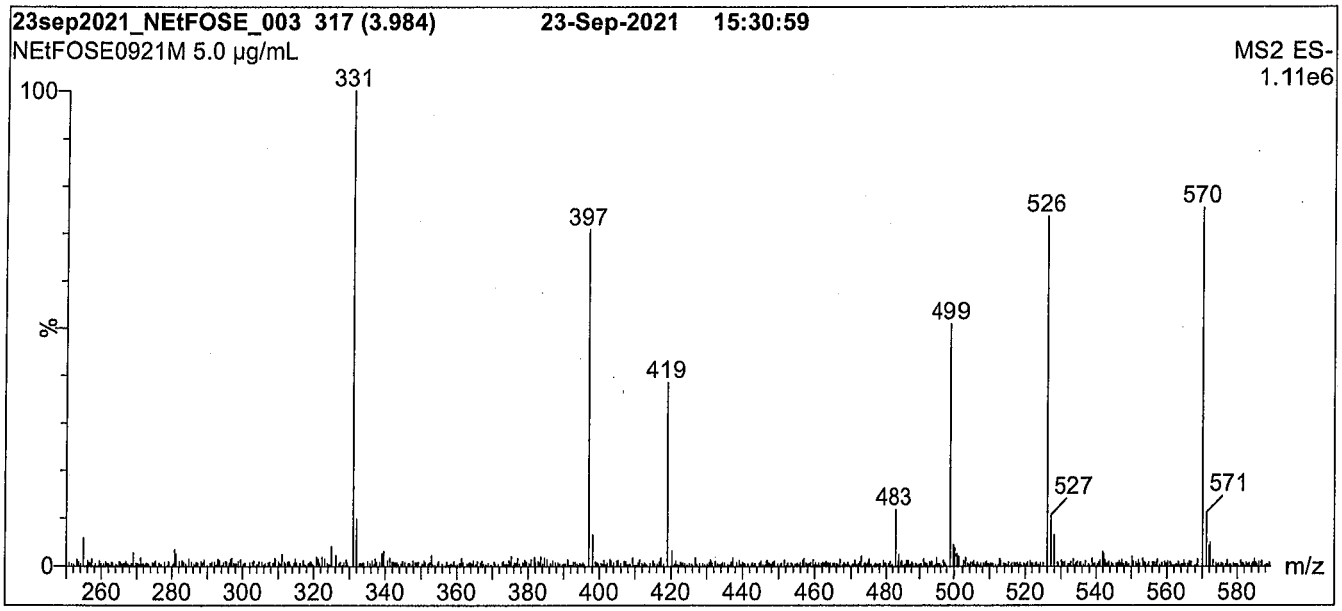
Agilent 7890A HRGC
Agilent 5975C MSD

Chromatographic Conditions:

Column:	30 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W
Flow:	Constant at 1 mL/min
Injector:	250°C (Splitless Injection)
Oven:	100°C (5 min) 10°C/min to 325°C 325°C (10 min)
Ionization:	EI+
Detector:	230°C Full Scan (50-1000 amu)

Figure 2: **N-EtFOSE-M; LC/MS Data (Full Scan and Mass Spectrum)**





Conditions for Figure 2:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% H_2O / 70% MeOH
Ramp to 90% organic over 8 min and hold for
1.5 min before returning to initial conditions in 1 min.
Time: 12 min

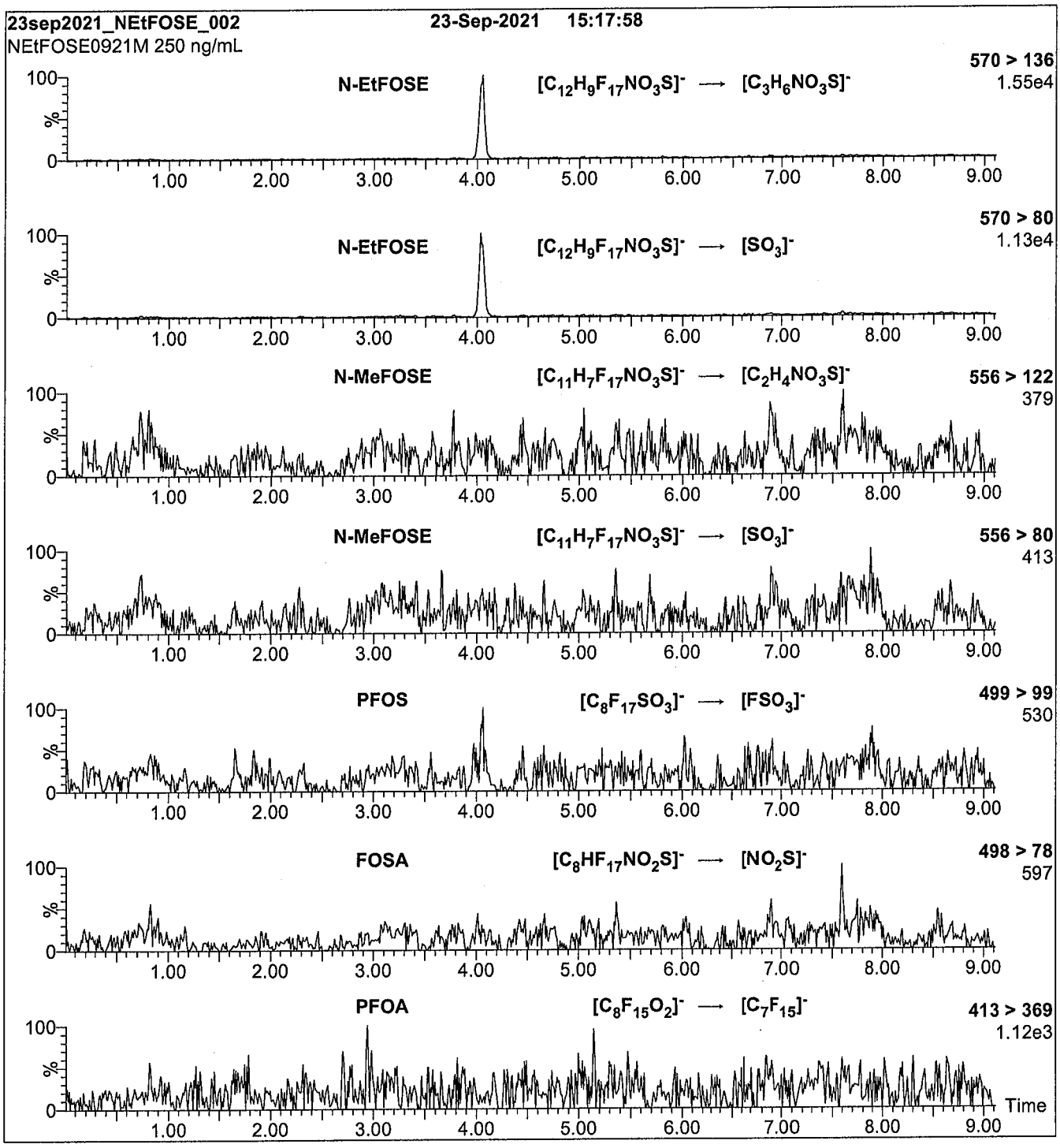
Flow: 300 µL/min

MS Parameters:

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Desolvation Temperature (°C) = 450
Desolvation Gas Flow (L/hr) = 1000

Figure 3: **N-EtFOSE-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (N-EtFOSE-M)

Mobile phase: Same as Figure 2

Flow: 300 µL/min

MS Parameters:

Collision Gas (mbar) = 3.14e-3
Collision Energy (eV) = 32

Analytical Standard Record

22C0310

Description:	PFAS - SAS NEtFOSE 50ug/mL	Expires:	09/23/2026
Standard Type:	Analyte Spike	Prepared:	03/15/2022
Solvent:	Methanol	Prepared By:	Wellington Laboratories (Lot#: NEtFOSE0921M)
Final Volume (mls):	1	Department:	PFAS
Vials:	1	Last Edit:	03/15/2022 15:59 by DAG

Analyte	Parent	CAS Number	Concentration	Units
NEtFOSE		1691-99-2	50	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

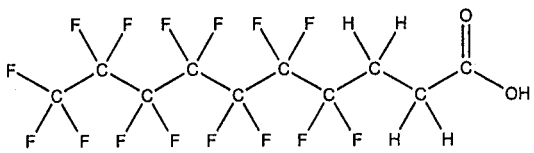
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FHpPA
COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020
22C0311

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: $C_{10}H_5F_{15}O_2$
MOLECULAR WEIGHT: 442.12
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/12/2020
EXPIRY DATE: (mm/dd/yyyy) 11/12/2025
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

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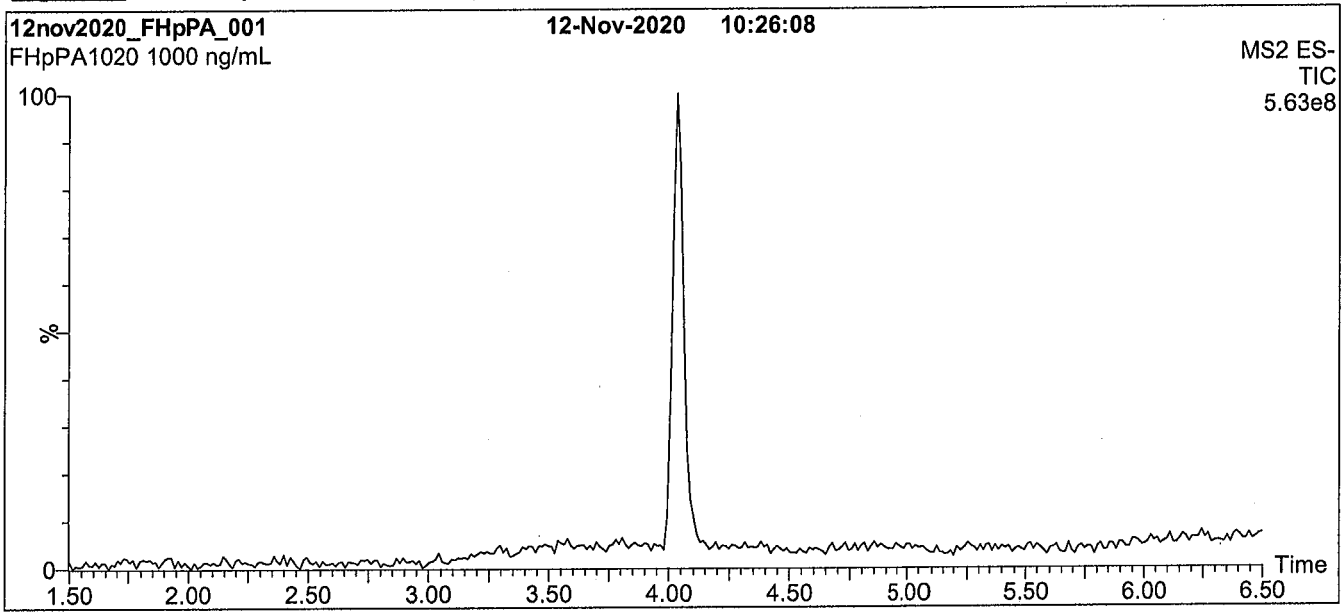
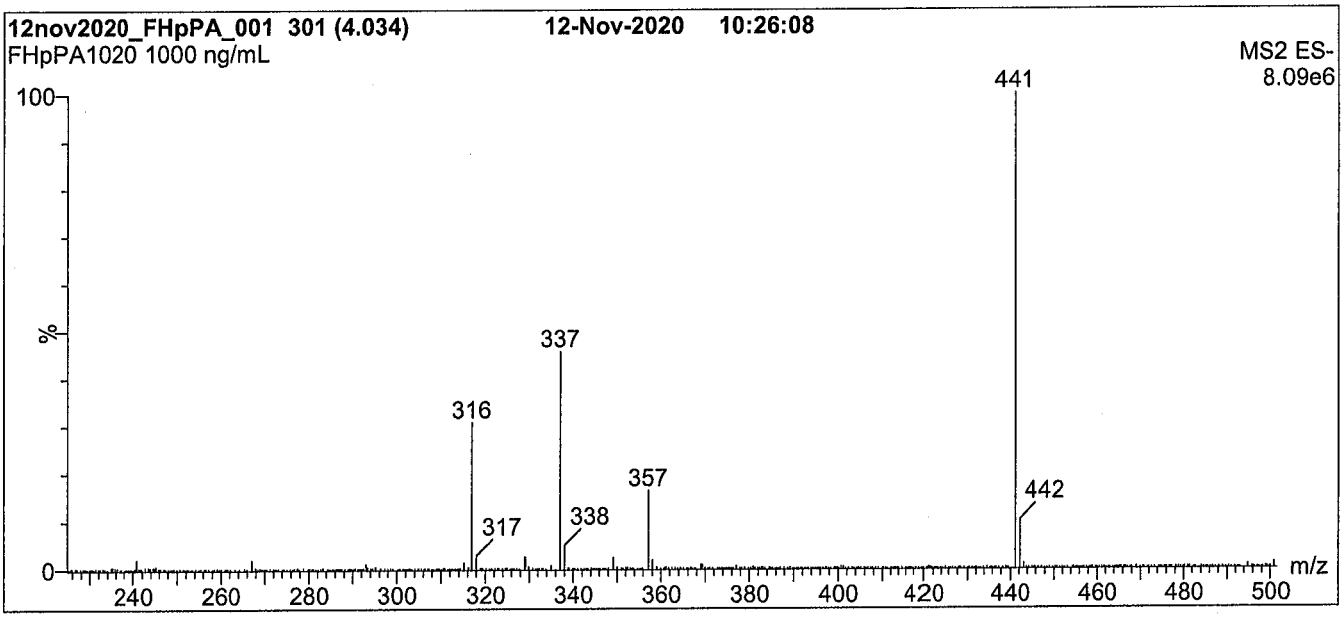
Figure 1: **FHpPA; LC/MS Data (TIC and Mass Spectrum)**





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

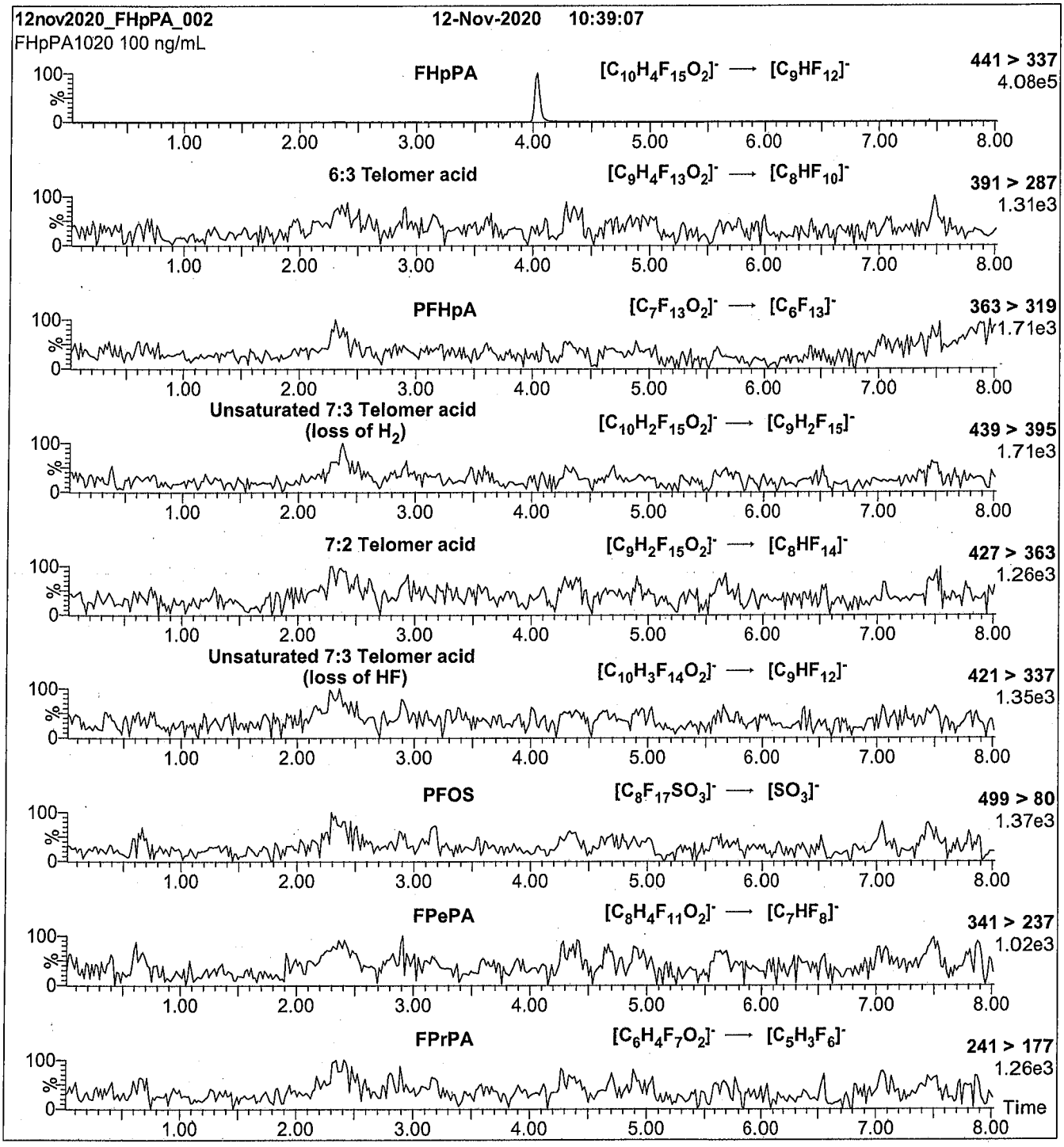
Flow: 300 µL/min

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

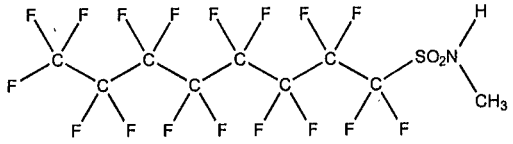
Reviewed By

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.

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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
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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED 17034 REFERENCE MATERIAL PRODUCER

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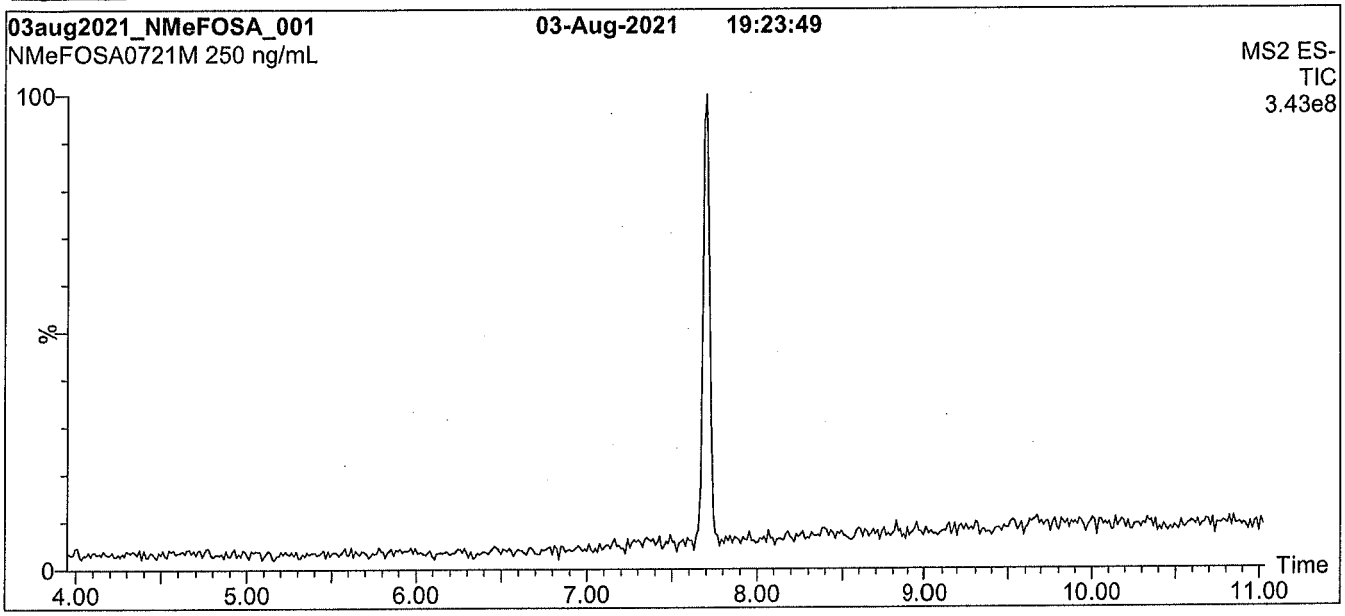
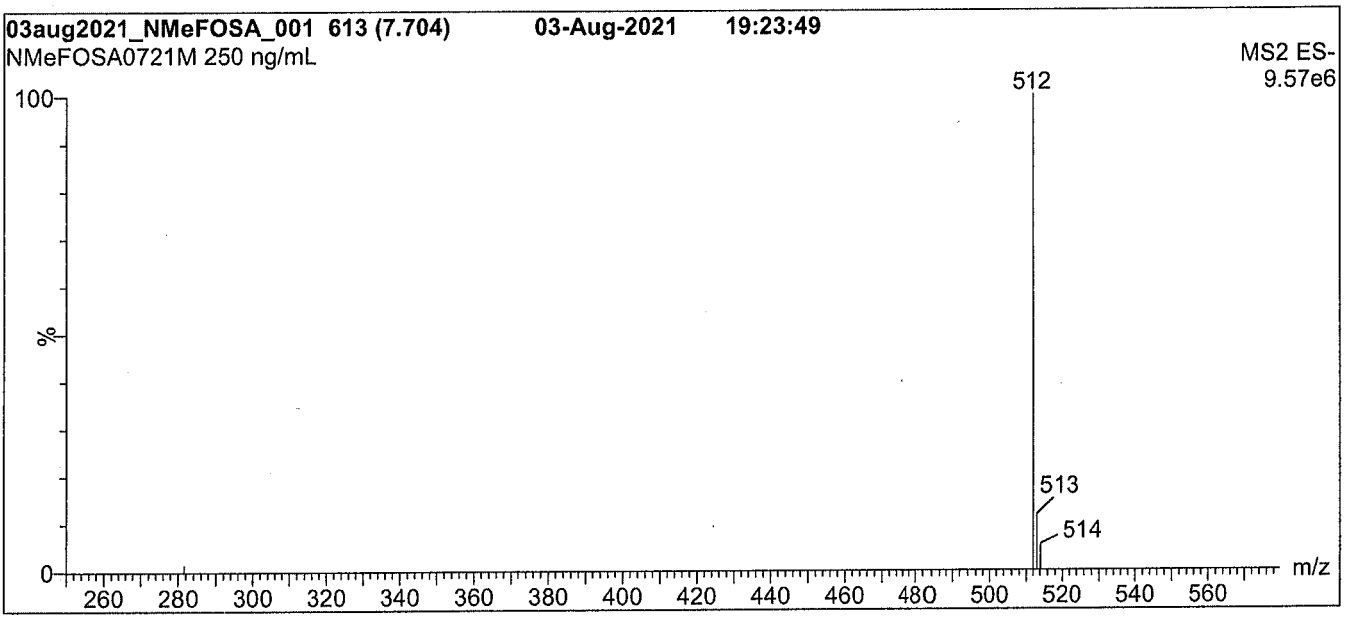
Figure 1: **N-MeFOSA-M; LC/MS Data (Full Scan and Mass Spectrum)**





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

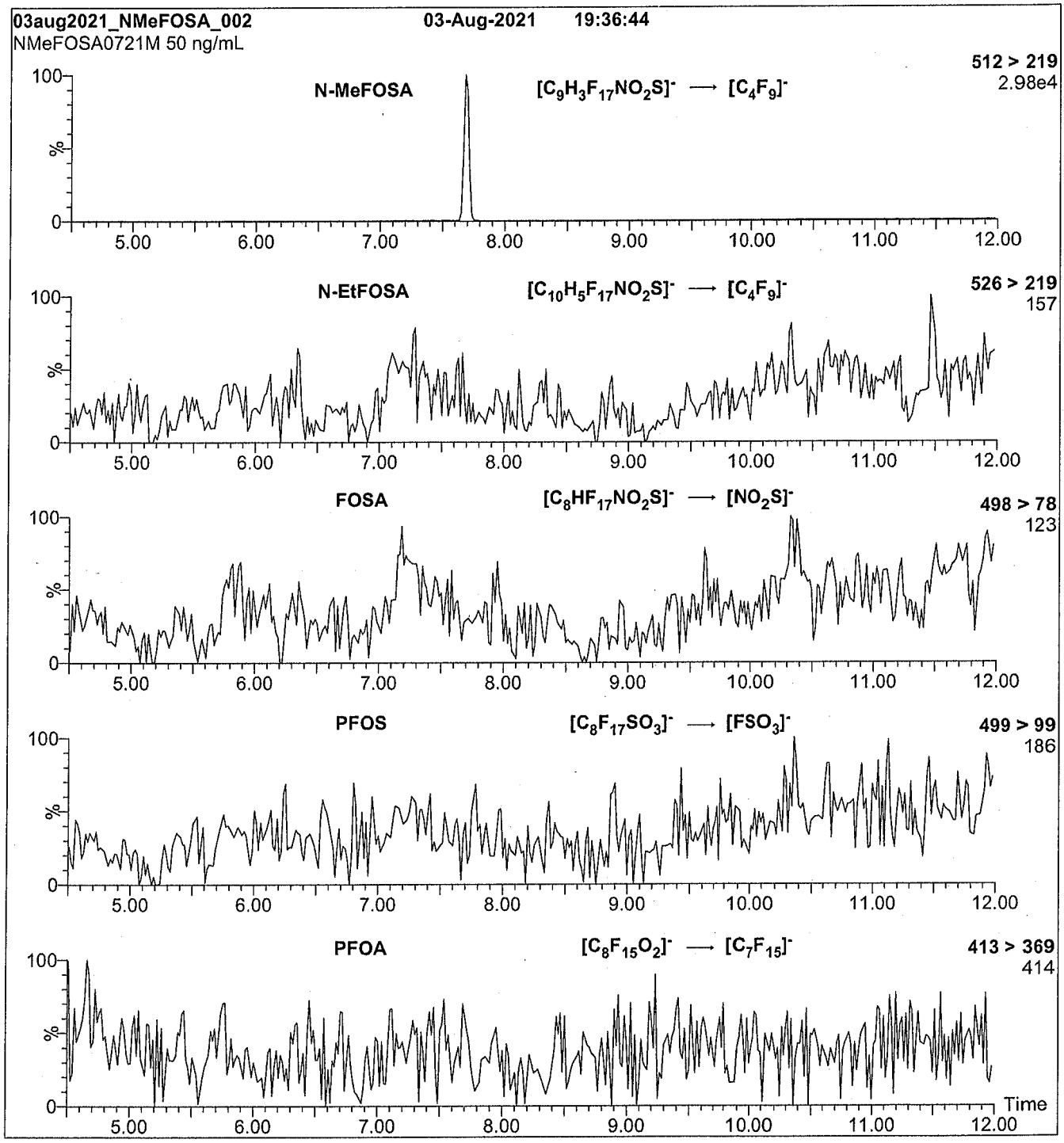
Flow: 300 µL/min

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

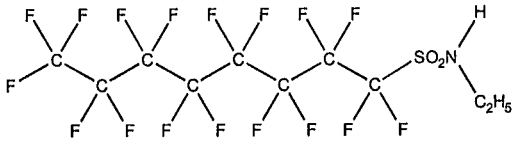
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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.

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Certified By: _____ **Date:** 08/16/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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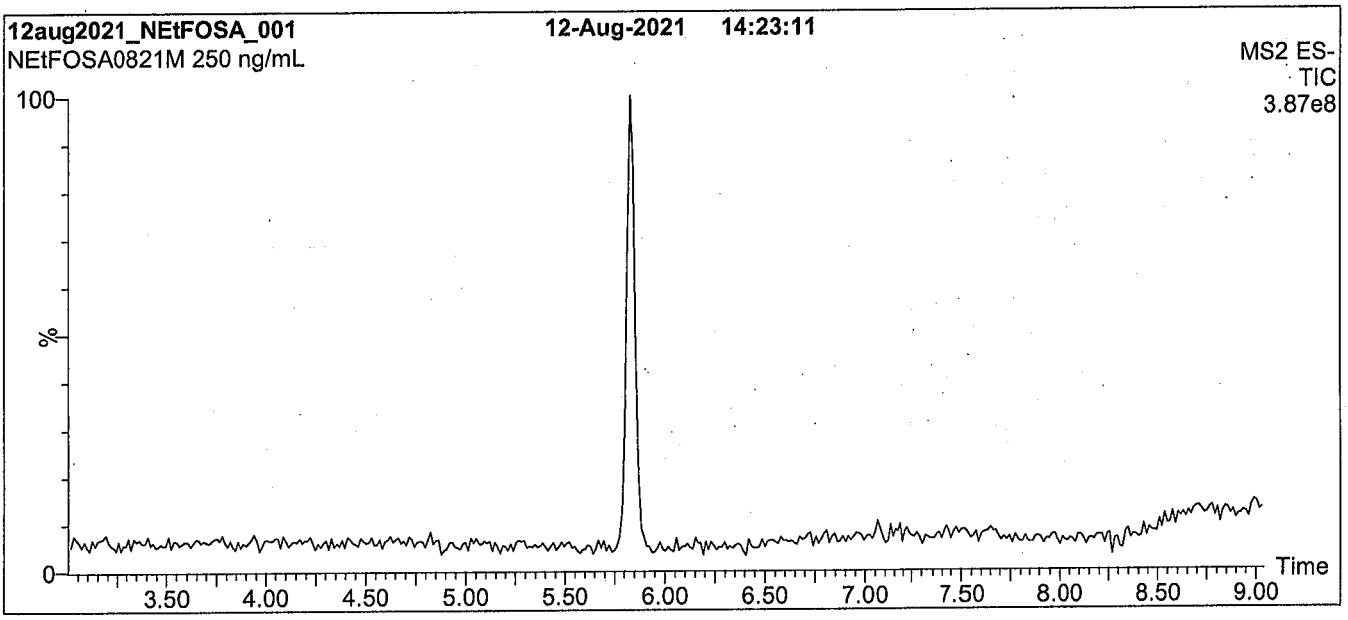
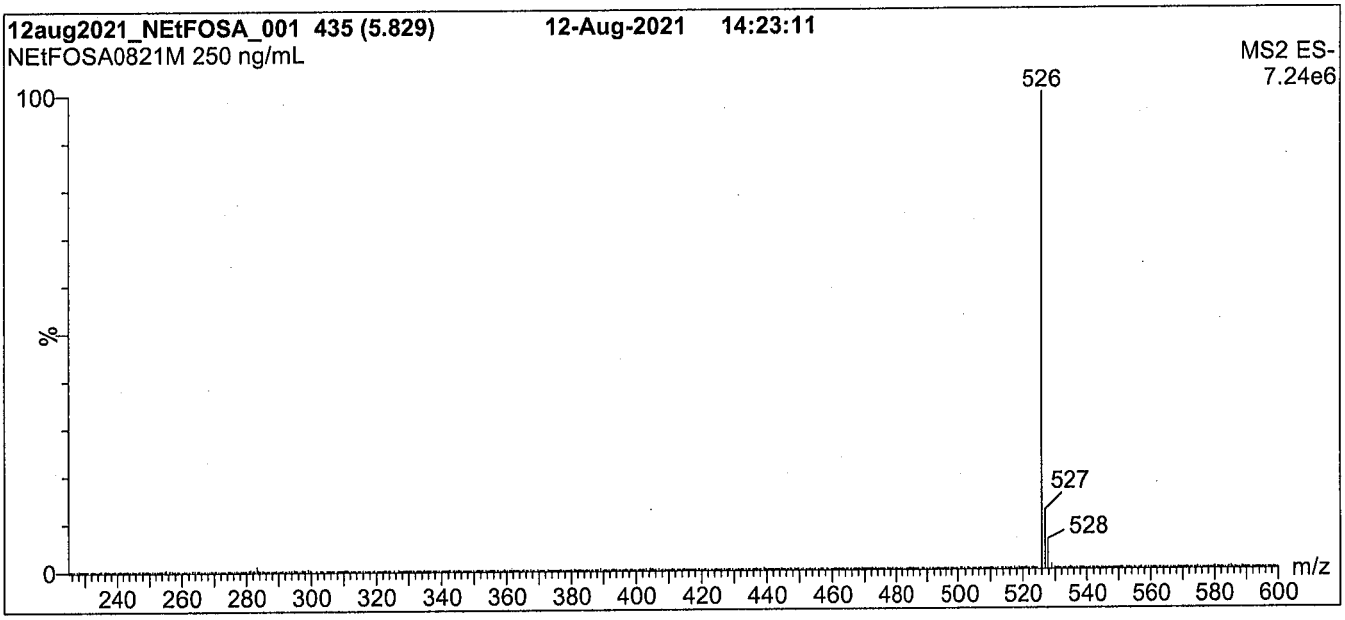
Figure 1: **N-EtFOSA-M; LC/MS Data (Full Scan and Mass Spectrum)**





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.

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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

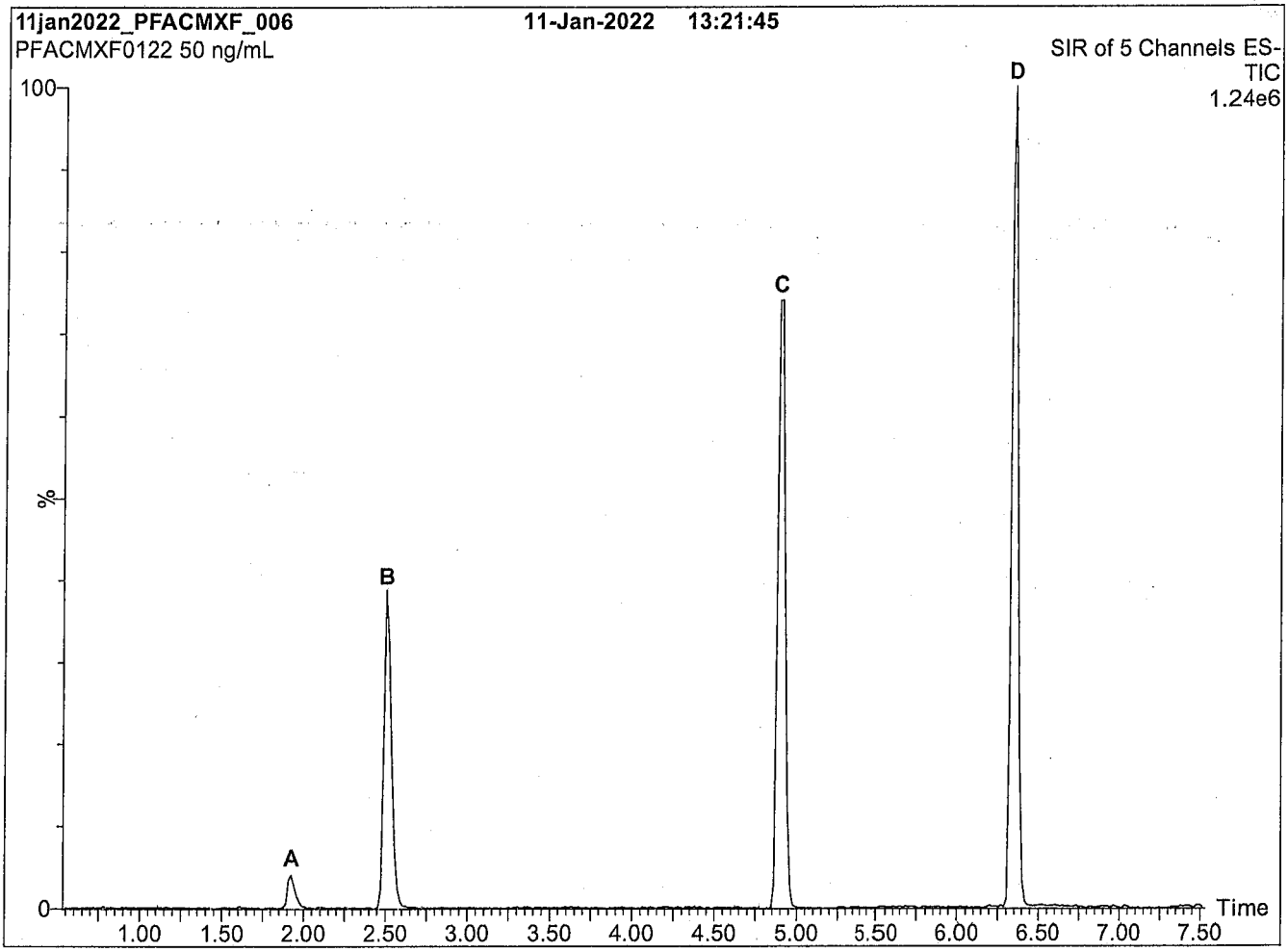
Table A: **PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))**

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

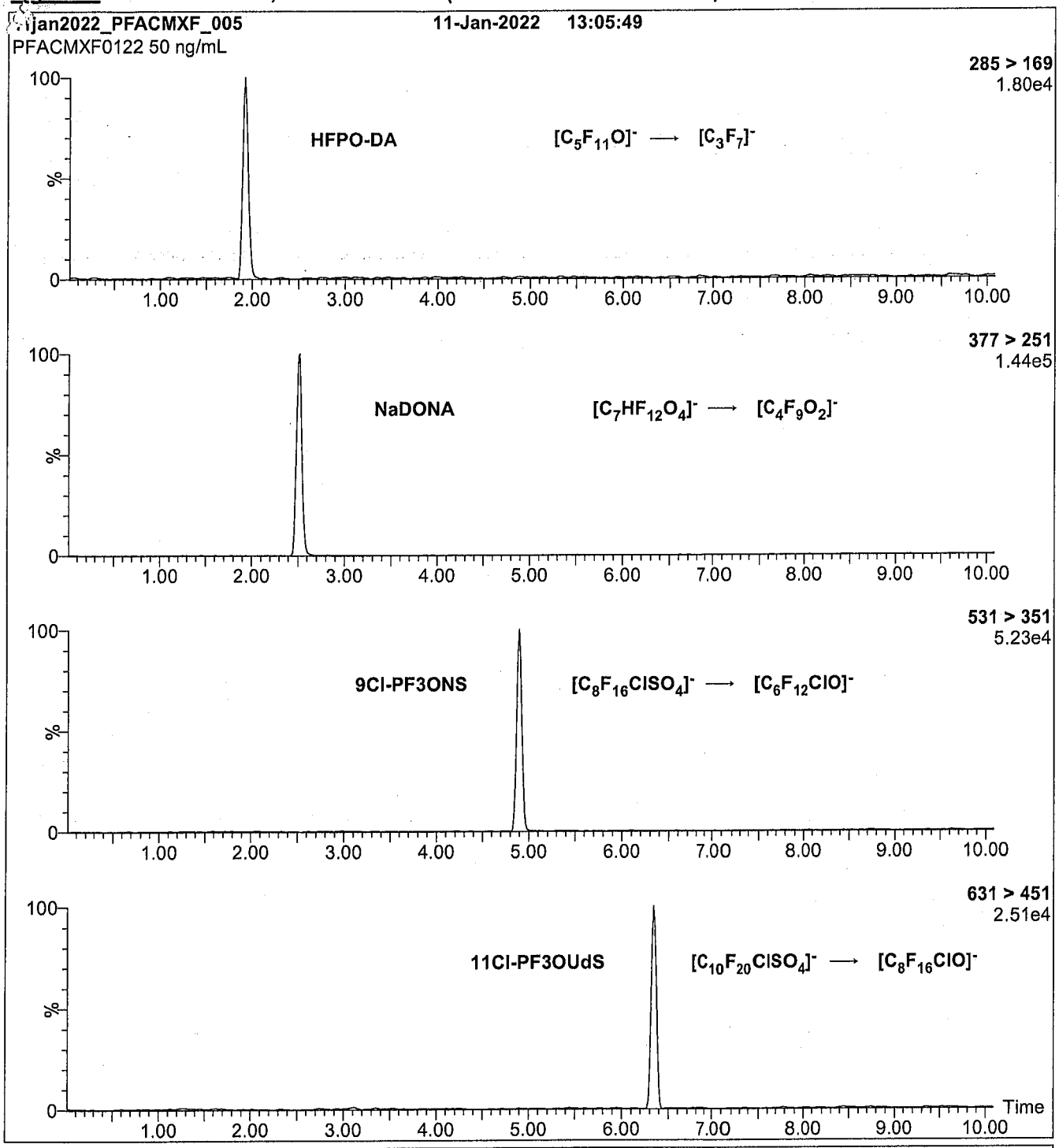
Flow: 300 µL/min

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.

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **PFAC-MXH; Components and Concentrations (µg/mL, ± 5% in methanol / isopropanol (2%) / water (<1%))**

Compound	Acronym	Concentration* (µg/mL)		Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	4.00		1
Perfluoro-n-pentanoic acid	PFPeA	2.00		2
Perfluoro-n-hexanoic acid	PFHxA	1.00		5
Perfluoro-n-heptanoic acid	PFHpA	1.00		7
Perfluoro-n-octanoic acid	PFOA	1.00		11
Perfluoro-n-nonanoic acid	PFNA	1.00		14
Perfluoro-n-decanoic acid	PFDA	1.00		18
Perfluoro-n-undecanoic acid	PFUdA	1.00		23
Perfluoro-n-dodecanoic acid	PFDoA	1.00		26
Perfluoro-n-tridecanoic acid	PFTrDA	1.00		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1.00		29
Perfluoro-1-octanesulfonamide	FOSA	1.00		25
N-methylperfluorooctanesulfonamidoacetic acid [a]	N-MeFOSAA: linear isomer	0.760		20
	N-MeFOSAA: ∑ branched isomers	0.240		17
N-ethylperfluorooctanesulfonamidoacetic acid [b]	N-EtFOSAA: linear isomer	0.775		22
	N-EtFOSAA: ∑ branched isomers	0.225		21
Compound	**Acronym**	**Concentration* (µg/mL)**		**Peak Assignment in Figure 1**
		as the salt	**as the acid**	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1.00	0.887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1.00	0.941	6
Potassium perfluorohexanesulfonate [c]	PFHxSK: linear isomer	0.811	0.741	9
	PFHxSK: ∑ branched isomers	0.189	0.173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1.00	0.953	12
Potassium perfluorooctanesulfonate [d]	PFOSK: linear isomer	0.788	0.732	15
	PFOSK: ∑ branched isomers	0.211	0.196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1.00	0.962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1.00	0.965	24
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1.00	0.970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4.00	3.75	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4.00	3.80	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4.00	3.84	16

[a] See Table B for percent composition of linear and branched N-MeFOSAA isomers.
[b] See Table C for percent composition of linear and branched N-EtFOSAA isomers.
[c] See Table D for percent composition of linear and branched PFHxSK isomers.
[d] See Table E for percent composition of linear and branched PFOSK isomers.

* Concentrations have been rounded to three significant figures.

Certified By: _____ **Date:** 09/23/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **br-NMeFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	N-methylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(CH_3)CH_2CO_2H$	76.0	76.0
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_3)CH_2CO_2H$	0.7	24.0
3	N-methylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(CH_3)CH_2CO_2H$	2.0	
4	N-methylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	6.0	
5	N-methylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(CH_3)CH_2CO_2H$	14.0	
6	N-methylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(CH_3)CH_2CO_2H$	0.2	
7	Other Unidentified Isomers		1.1	

* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

Table C: **br-NEtFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	N-ethylperfluoro-1-octanesulfonamidoacetic acid	$CF_3(CF_2)_7SO_2N(C_2H_5)CH_2CO_2H$	77.5	77.5
2	N-ethylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	2.3	22.5
3	N-ethylperfluoro-4-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_2CF(CF_3)(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	2.2	
4	N-ethylperfluoro-5-methylheptanesulfonamidoacetic acid	$CF_3CF_2CF(CF_3)(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	5.4	
5	N-ethylperfluoro-6-methylheptanesulfonamidoacetic acid	$CF_3CF(CF_3)(CF_2)_5SO_2N(C_2H_5)CH_2CO_2H$	10.4	
6	N-ethylperfluoro-5,5-dimethylhexanesulfonamidoacetic acid	$CF_3C(CF_3)_2(CF_2)_4SO_2N(C_2H_5)CH_2CO_2H$	0.3	
7	N-ethylperfluoro-4,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF(CF_2)_3SO_2N(C_2H_5)CH_2CO_2H$	0.3	
8	N-ethylperfluoro-3,5-dimethylhexanesulfonamidoacetic acid	$CF_3CF(CF_3)CF_2CF(CF_2)_2SO_2N(C_2H_5)CH_2CO_2H$	0.3	
9	Other Unidentified Isomers		1.3	

* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

Table D: **PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FSO_3^-K^+$	2.9	18.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2SO_3^-K^+$	1.4	
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2CF_2SO_3^-K^+$	5.0	
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3\underset{\displaystyle CF_3}{\underset{\vert}{C}}FCF_2CF_2CF_2SO_3^-K^+$	8.9	
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3\underset{\displaystyle CF_3}{\underset{\vert}{\overset{\displaystyle CF_3}{\overset{\vert}{C}}}}CF_2CF_2SO_3^-K^+$	0.2	
7	Other Unidentified Isomers		0.5	

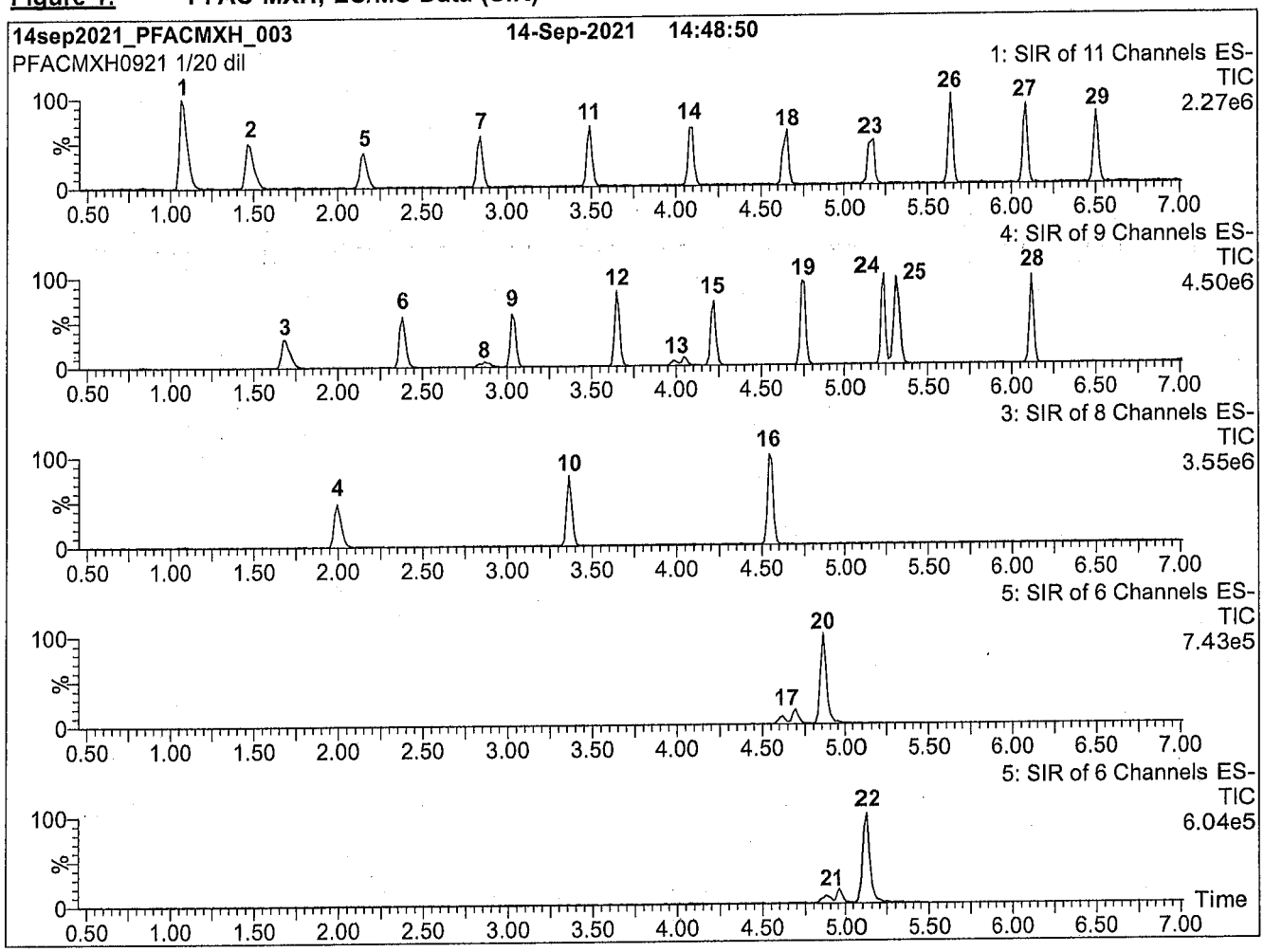
* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Table E: **PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Compound	Structure	Percent Composition by ^{19}F-NMR	
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6	
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9	
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0	
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3C(CF_3)_2CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2	
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)_2CF_2CF_2CF_2SO_3^-K^+$	0.03	
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07	

* Percent of total perfluorooctanesulfonate isomers only.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Figure 1: **PFAC-MXH; LC/MS Data (SIR)**



Conditions for Figure 1:

Waters Acquity Ultra Performance LC
Waters Xevo TQ-S micro MS

Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% H_2O / 50% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 9 min and hold for 2 min
before returning to initial conditions in 1 min.
Time: 15 min

Flow: 300 µL/min

MS Parameters:

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = variable (2-74)
Desolvation Temperature (°C) = 350
Desolvation Gas Flow (L/hr) = 1000

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

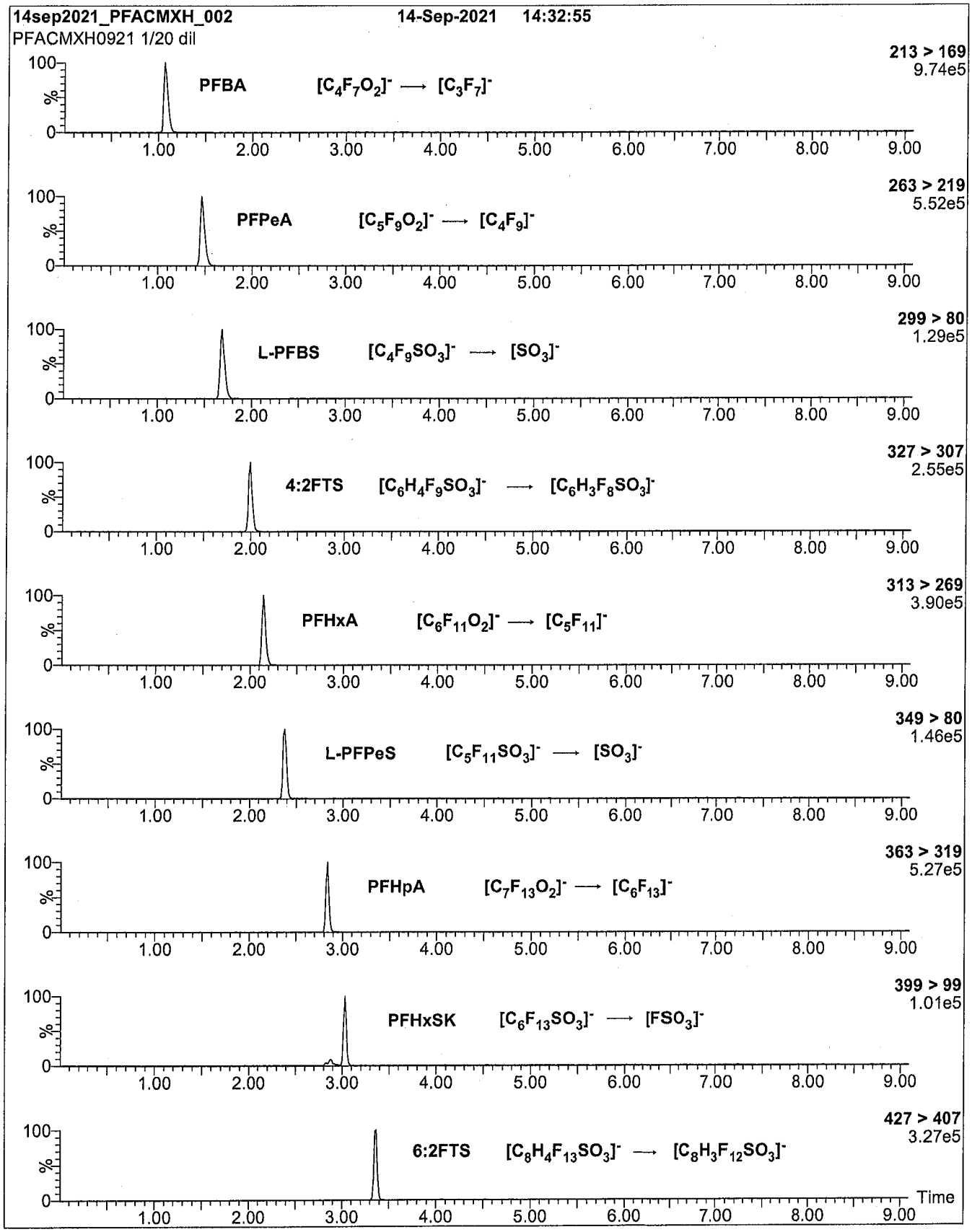


Figure 2: **PFAC-MXH; LC/MS/MS Data (Selected MRM Transitions)**

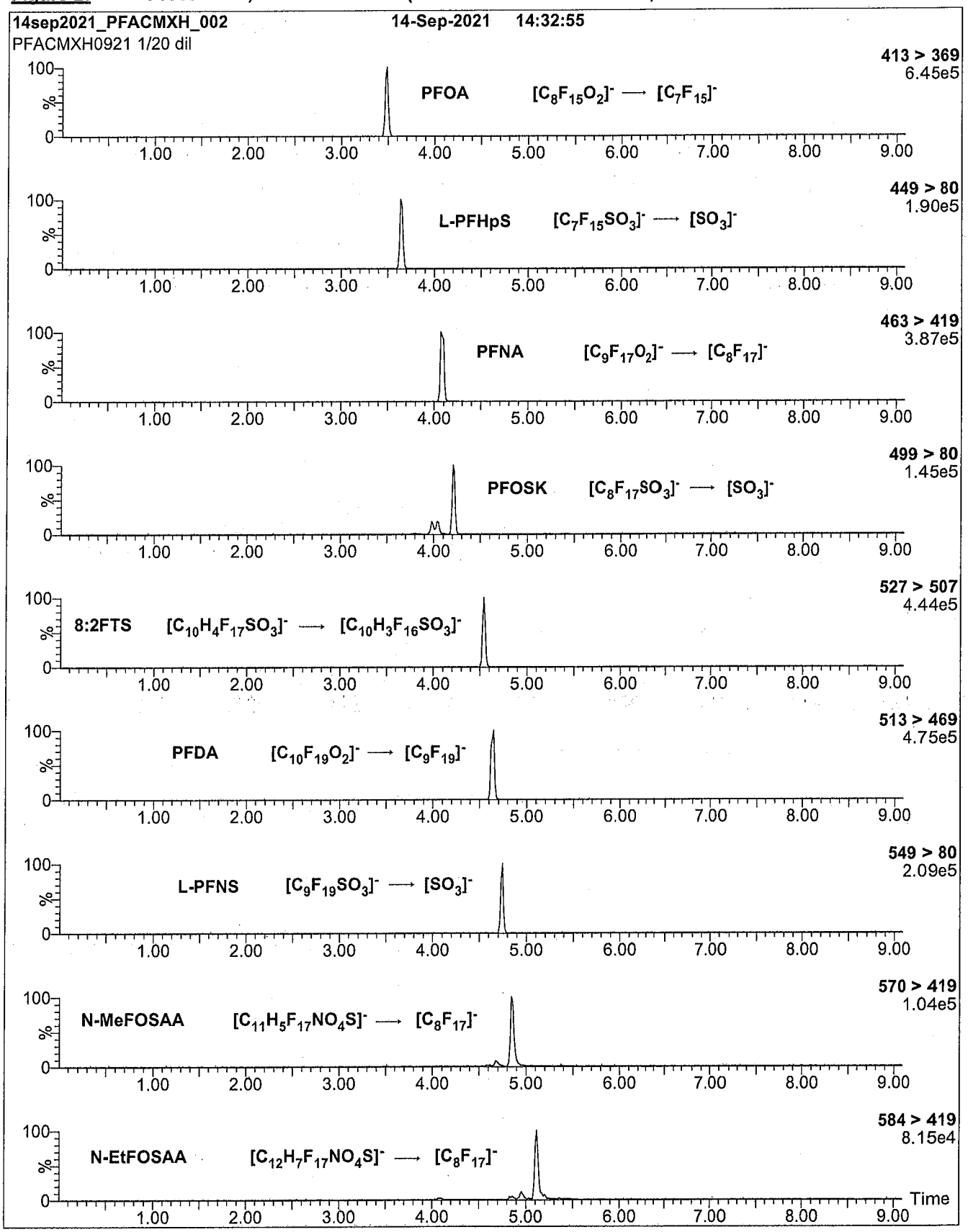
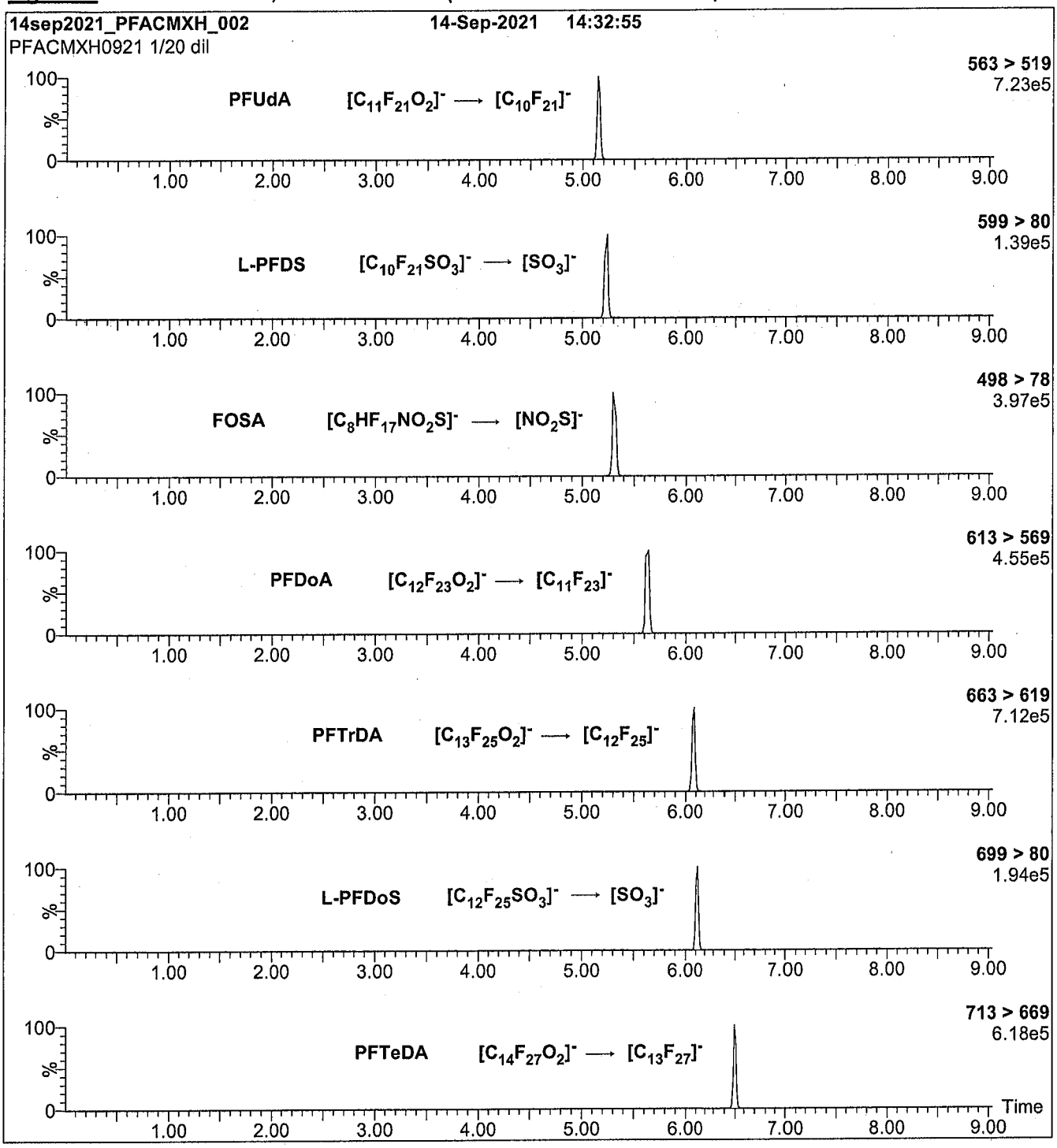


Figure 2: **PFAC-MXH; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFAC-MXH)

Mobile phase: Same as Figure 1

Flow: 300 µL/min

MS Parameters:
Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 6-60 (variable)

Analytical Standard Record

22F0059

Description:	PFAS - MIX MXH 2ug/mL	Expires:	09/14/2026
Standard Type:	Other	Prepared:	09/09/2021
Solvent:	MeOH	Prepared By:	Lizbeth Andres
Final Volume (mls):	1.2	Department:	PFAS
Vials:	1	Last Edit:	09/15/2022 09:33 by DAG

Analyte	Parent	CAS Number	Concentration	Units
4:2FTS		757124-72-4	3.75	ug/mL
6:2FTS		27619-97-2	3.8	ug/mL
8:2FTS		39108-34-4	3.84	ug/mL
NEtFOSAA		2991-50-6	1	ug/mL
NMeFOSAA		2355-31-9	1	ug/mL
PFBA		375-22-4	4	ug/mL
PFBS		375-73-5	0.887	ug/mL
PFDA		335-76-2	1	ug/mL
PFDOA		307-55-1	1	ug/mL
PFDOS		79780-39-5	0.97	ug/mL
PFDS		335-77-3	0.965	ug/mL
PFHPA		375-85-9	1	ug/mL
PFHPS		375-92-8	0.953	ug/mL
PFHXA		307-24-4	1	ug/mL
PFHXS		355-46-4	0.914	ug/mL
PFNA		375-95-1	1	ug/mL
PFNS		68259-12-1	0.962	ug/mL
PFOA		335-67-1	1	ug/mL
PFOS		1763-23-1	0.928	ug/mL
PFOSA		754-91-6	1	ug/mL
PFPEA		2706-90-3	2	ug/mL
PFPES		630402-22-1	0.941	ug/mL
PFTEDA		376-06-7	1	ug/mL
PFTRDA		72629-94-8	1	ug/mL
PFUnA		2058-94-8	1	ug/mL

Reviewed By

Date

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXG 22F0061

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

PRODUCT CODE:	PFAC-MXG
LOT NUMBER:	PFACMXG0222
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	02/07/2022
LAST TESTED: (mm/dd/yyyy)	02/22/2022
EXPIRY DATE: (mm/dd/yyyy)	02/22/2027
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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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%))**

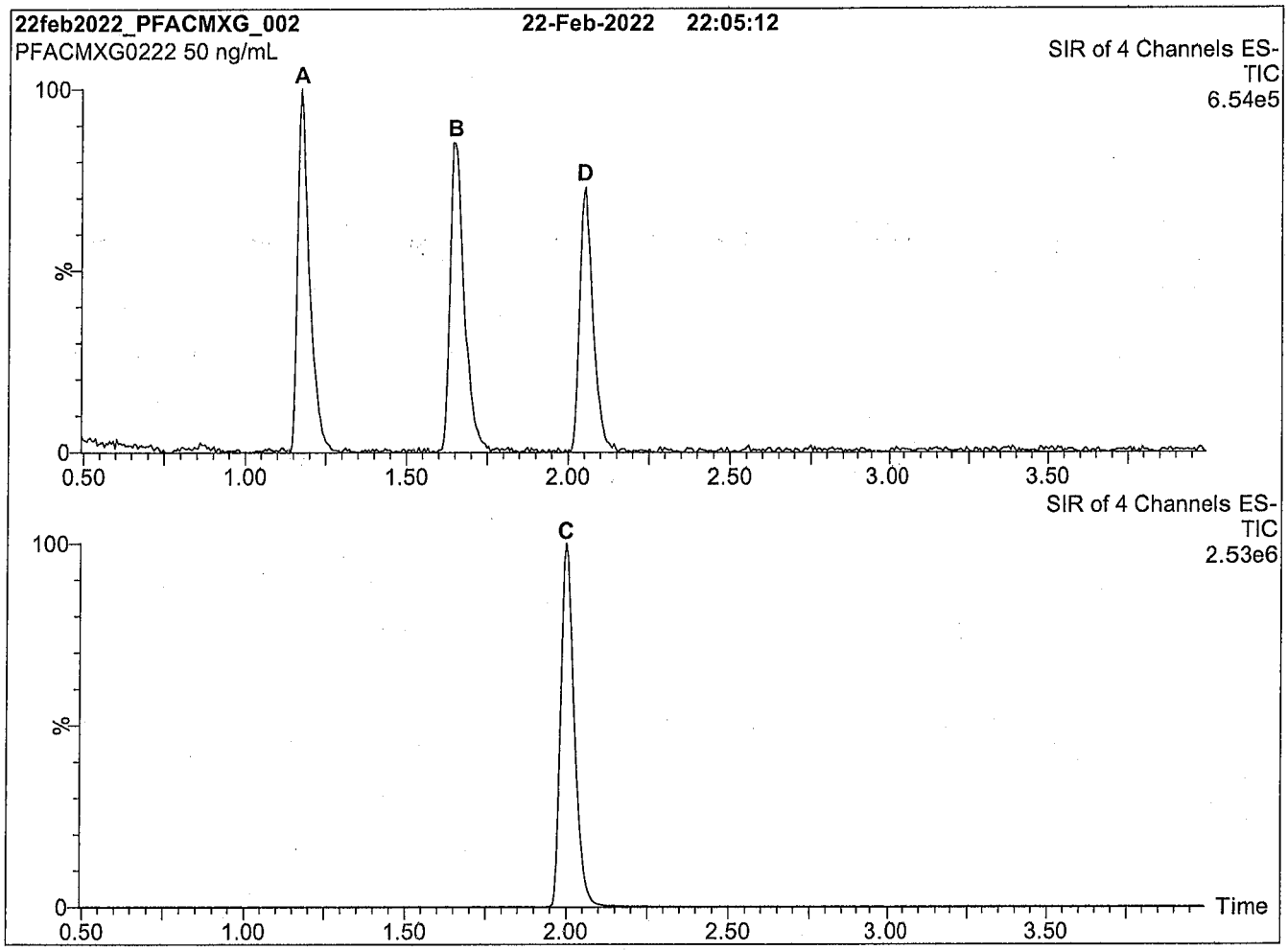
Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	**Acronym**	**Concentration* (ng/mL)**		**Peak Assignment in Figure 1**
		as the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

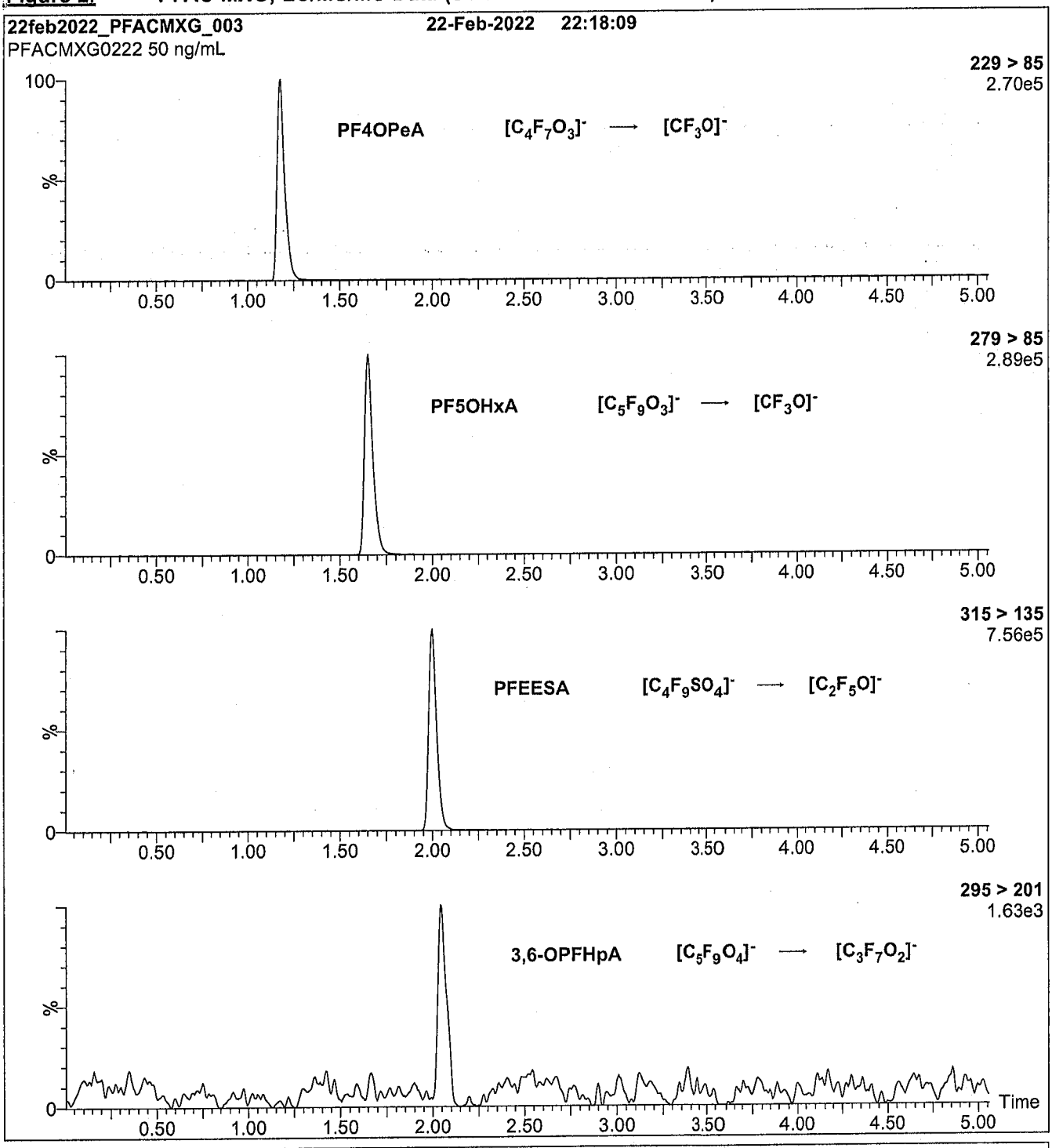
Flow: 300 µL/min

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.

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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.

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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

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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.

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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.

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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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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

Analytical Standard Record

22K0502

Description:	PFAS IIS 7C 40ng/mL	Expires:	01/20/2023
Standard Type:	Internal Standard	Prepared:	11/28/2022
Solvent:	MeOH/62286	Prepared By:	Dipti Gokal
Final Volume (mls):	25	Department:	PFAS
Vials:	1	Last Edit:	11/28/2022 15:10 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

22K0503

Description:	1633- IIS Static 1ng/mL	Expires:	01/20/2023
Standard Type:	Internal Standard	Prepared:	11/28/2022
Solvent:	MeOH/62286	Prepared By:	Dipti Gokal
Final Volume (mls):	2	Department:	PFAS
Vials:	1	Last Edit:	11/28/2022 15:11 by DAG

Analyte	Parent	CAS Number	Concentration	Units
13C2-PFDA	22K0502	13C2-PFDA	0.001	ug/mL
13C2-PFHXA	22K0502	13C2-PFHxA	0.001	ug/mL
13C3-PFBA	22K0502	13C3-PFBA	0.001	ug/mL
13C4-PFOA	22K0502	13C4-PFOA	0.001	ug/mL
13C4-PFOS	22K0502	13C4-PFOS	0.001	ug/mL
13C5-PFNA	22K0502	13C5-PFNA	0.001	ug/mL
18O2-PFHXS	22K0502	18O2-PFHXS	0.001	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22K0502	PFAS IIS 7C 40ng/mL	11/28/2022	In house	*	01/20/2023	11/28/2022 15:10	by DAG	0.05

Reviewed By

Date

Analytical Standard Record

22L0269

Description:	PFAS - MIX 1633 10ng/mL	Expires:	06/12/2023
Standard Type:	Analyte Spike	Prepared:	12/14/2022
Solvent:	MeOH	Prepared By:	Dipti Gokal
Final Volume (mls):	10	Department:	PFAS
Vials:	1	Last Edit:	12/14/2022 12:00 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

22L0269

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

22L0272

Description:	MPFAC-HIF-ES 20.0ng/mL	Expires:	06/12/2023
Standard Type:	Surrogate Spike	Prepared:	12/14/2022
Solvent:	MeOH/62244	Prepared By:	Andonios Karas
Final Volume (mls):	10	Department:	PFAS
Vials:	3	Last Edit:	12/14/2022 13:55 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	22K0095	13C2-4:2FTS	0.04	ug/mL
13C2-6:2FTS	22K0095	13C2-6:2FTS	0.04	ug/mL
13C2-8:2FTS	22K0095	13C2-8:2FTS	0.04	ug/mL
13C2-PFDOA	22K0095	13C2-PFDOA	0.01	ug/mL
13C2-PFTEDA	22K0095	13C2-PFTEDA	0.01	ug/mL
13C3-HFPO-DA	22K0095	13C3-HFPO-DA	0.08	ug/mL
13C3-PFBS	22K0095	13C3-PFBS	0.02	ug/mL
13C3-PFHXS	22K0095	13C3-PFHXS	0.02	ug/mL
13C4-PFBA	22K0095	13C4-PFBA	0.08	ug/mL
13C4-PFHPA	22K0095	13C4-PFHPA	0.02	ug/mL
13C5-PFHXA	22K0095	13C5-PFHXA	0.02	ug/mL
13C5-PFPEA	22K0095	13C5-PFPEA	0.04	ug/mL
13C6-PFDA	22K0095	13C6-PFDA	0.01	ug/mL
13C7-PFUnA	22K0095	13C7-PFUDA	0.01	ug/mL
13C8-PFOA	22K0095	13C8-PFOA	0.02	ug/mL
13C8-PFOS	22K0095	13C8-PFOS	0.02	ug/mL
13C8-PFOSA	22K0095	13C8-PFOSA	0.02	ug/mL
13C9-PFNA	22K0095	13C9-PFNA	0.01	ug/mL
D3-NMEFOSA	22K0095	D3-NMEFOSA	0.02	ug/mL
D3-NMEFOSAA	22K0095	D3-NMEFOSAA	0.04	ug/mL
D5-NETFOSA	22K0095	D5-NETFOSA	0.02	ug/mL
D5-NETFOSAA	22K0095	D5-NETFOSAA	0.04	ug/mL
D7-NMEFOSE	22K0095	D7-NMEFOSE	0.2	ug/mL
D9-NETFOSE	22K0095	D9-NETFOSE	0.2	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22K0095	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

22L0273

Description:	MPFAC-HIF-ES 20.0ng/mL	Expires:	06/12/2023
Standard Type:	Surrogate Spike	Prepared:	12/14/2022
Solvent:	MeOH/62244	Prepared By:	Andonios Karas
Final Volume (mls):	10	Department:	PFAS
Vials:	3	Last Edit:	12/14/2022 13:55 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	22K0095	13C2-4:2FTS	0.04	ug/mL
13C2-6:2FTS	22K0095	13C2-6:2FTS	0.04	ug/mL
13C2-8:2FTS	22K0095	13C2-8:2FTS	0.04	ug/mL
13C2-PFDOA	22K0095	13C2-PFDOA	0.01	ug/mL
13C2-PFTEDA	22K0095	13C2-PFTEDA	0.01	ug/mL
13C3-HFPO-DA	22K0095	13C3-HFPO-DA	0.08	ug/mL
13C3-PFBS	22K0095	13C3-PFBS	0.02	ug/mL
13C3-PFHXS	22K0095	13C3-PFHXS	0.02	ug/mL
13C4-PFBA	22K0095	13C4-PFBA	0.08	ug/mL
13C4-PFHPA	22K0095	13C4-PFHPA	0.02	ug/mL
13C5-PFHXA	22K0095	13C5-PFHXA	0.02	ug/mL
13C5-PFPEA	22K0095	13C5-PFPEA	0.04	ug/mL
13C6-PFDA	22K0095	13C6-PFDA	0.01	ug/mL
13C7-PFUnA	22K0095	13C7-PFUDA	0.01	ug/mL
13C8-PFOA	22K0095	13C8-PFOA	0.02	ug/mL
13C8-PFOS	22K0095	13C8-PFOS	0.02	ug/mL
13C8-PFOSA	22K0095	13C8-PFOSA	0.02	ug/mL
13C9-PFNA	22K0095	13C9-PFNA	0.01	ug/mL
D3-NMEFOSA	22K0095	D3-NMEFOSA	0.02	ug/mL
D3-NMEFOSAA	22K0095	D3-NMEFOSAA	0.04	ug/mL
D5-NETFOSA	22K0095	D5-NETFOSA	0.02	ug/mL
D5-NETFOSAA	22K0095	D5-NETFOSAA	0.04	ug/mL
D7-NMEFOSE	22K0095	D7-NMEFOSE	0.2	ug/mL
D9-NETFOSE	22K0095	D9-NETFOSE	0.2	ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
22K0095	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